DOCUMENT RESUME

ED 284 241 CS 210 660

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TITLE Computers in College Composition: A Comparative Study of Ten Schools.
PUB DATE Sep 86
NOTE 131p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS *College English; Comparative Analysis; *Computer Assisted Instruction; *Computer Oriented Programs; *Computer Uses in Education; Educational Technology; Higher Education; *Learning Laboratories; School Surveys; *Writing Instruction; Writing Research

ABSTRACT

To compare information about the uses of computers in composition in representative universities, this document reports on a study that gathered data from teachers, administrators, and students at 10 universities by means of questionnaires and interviews by letter, by phone, and in person during visits to campus computer labs and classrooms. The information is presented in chapters covering the following topics: (1) goals of the study; (2) materials and procedures; (3) institutions included in the study (colleges in Colorado, New Jersey, Pennsylvania, Michigan, Alabama, California, Minnesota, Utah, and Illinois); (4) types of institutions (public, private, two-year, four-year, technical, and liberal arts); (5) administrators and faculty members interviewed; (6) summary of information; (7) composition courses in which computers are used; (8) numbers of courses and students involved; (9) numbers and kinds of labs, hardware, software, lab personnel, and users; (10) costs; (11) comparative answers of instructors, students, and administrators; (12) other answers of interest from the questionnaires; (13) primary conclusions and summaries (indexed to the relevant pages of the study); and (14) secondary conclusions and recommendations. The appendix contains copies of the questionnaires from which the data were drawn. (SKC)

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Computers in College Composition: A Comparative Study of Ten Schools

Ruth Gardner and Jo McGinnis

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Acknowledgments

We would like to thank the busy persons we interviewed for their time and for their hospitality. We met unfailing courtesy in person, on the telephone, and by letter. Beyond the courtesy lay that real enthusiasm that made us all forget time in favor of possibilities.

We must name some names: Charles Smith at Colorado State, Joan Steiner at Drew, Helen Schwartz at Oakland, Joan Mitchell at UC-Santa Barbara, Joyce Kinkead at Utah State, Brent Robinson at Cambridge. These people were especially hospitable and helpful in setting up interviews and giving answers to our relentless questions.

To those people at other universities, especially at Gallaudet and Cambridge, who expressed interest and who could not be included for reasons of focus, time, or expense, we extend our regrets that we were forced, finally, to say enough.

To Charles Davis of the University of Arizona for encouragement, both inspirational and monetary, to conduct the comparative study and to attend national conferences; to the UA Humanities Grant Committee for their grant of $1000; and to Erika Bissell for attention to the details of reimbursement, we are grateful.

To friends and extended family who fed us, housed us, and entertained us while we visited the cities close to the universities we surveyed, we appreciate the savings in money and the chance to visit.

To our husbands, who gave cheerful, patient, and unfailing support to us as we traveled around the country and to Europe for this research, and as we wrote it up, we are aware that none this study would not have been possible without you.

Computers in College Composition
A Comparative Study of Ten Schools

by Ruth Gardner and Jo McGinnis

1. GOALS OF THE STUDY

To gather, tally, and compare information about the uses of computers in composition programs at representative universities:

To gather background information from each institution

To complete an administrative questionnaire, two faculty questionnaires, and student questionnaires through interviews by letter, telephone, and, primarily, in person during visits to campuses and their computer labs and classrooms

With this data, to describe uses of computers in composition at each institution:

To juxtapose lists of computer courses, labs, costs, hardware, software, personnel, users, and uses at the institutions

To compare perceptions and attitudes of instructors and students and in some cases administrators about the same aspects of writing with computers

To draw conclusions

To suggest applications to composition programs

2. MATERIALS AND PROCEDURES

The study consists of materials from ten institutions, including interviews with 23 administrators, 19 faculty members in English and/or Composition, two departmental secretaries, and a student computer tutor. Faculty members gave questionnaires to their students near the end of the semester or quarter they were interviewed. We visited people and computer labs at eight schools during 1985. We interviewed administrators and faculty members in person and by telephone for the ninth institution, and from the tenth received completed administrative, faculty, and student questionnaires after we gave a presentation on the project at a national conference. As a result we ended up with 10 administrative questionnaires of 63 items each, 19 faculty questionnaires of 32 items, and 226 student questionnaires of 33 items each. (See Appendix)

We tallied answers, summarized information from each university, juxtaposed the answers to each item of each questionnaire, wrote comparative summaries for each item, and generalized in various ways about all of these combinations of the data. Although we use percentages where they make comparisons clearer, the study is primarily descriptive and, because it deals often with interviewees' perceptions and attitudes, subjective in nature.

3. Colleges Included in the Study

Colorado State University, Fort Collins, Colorado (CSU)
Drew University, Madison, New Jersey (DREW)
Drexel University, Philadelphia, Pennsylvania (DREXEL)
Oakland University, Rochester, Michigan (OAKLAND)
University of Alabama at Huntsville (UAH)
University of California at Los Angeles (UCLA)
University of California at Santa Barbara (UCSB)
University of Minnesota, Minneapolis (UM)
Utah State University, Logan (USU)
Wilbur Wright College, Chicago (WRIGHT)

4. TYPES OF INSTITUTIONS

The study includes six state universities from five states, three private universities, two of which are technical schools (DREXEL and OAKLAND) and one liberal arts (DREW), and one two-year city college (WRIGHT).

We were led to some of these schools by the extensive research being carried out in the areas of integrating computers into the composition program, software development, and studies of effects on writing processes. We gravitated to researchers and writers like Charles Smith and Kate Kiefer at Colorado State, Helen Schwartz at Oakland, Valarie Arms at Drexel, and Lillian Bridwell at Minnesota. We were intrigued by universities like Drew that have created computer-intensive environments on their campuses. We met other computer

enthusiasts, like Joan Mitchell at UC-Santa Barbara, who invited us to their campuses. Other universities, like Alabama at Huntsville, chose us when we presented our study at national conferences. Because the University of Arizona is a state university in the West, we naturally looked for like universities who seem to be making progress in the same areas, such as Utah State. Yet we wanted a balance in the types of institutions represented in the survey and some geographical balance as well.

The institutions in the study were included, in summary, for one of three reasons: 1) individuals within them have produced software for or research about writing with computers, 2) departments or institutions as a whole have provided computer labs for their composition students, and/or 3) have required every entering freshman to purchase a computer.

5. ADMINISTRATORS AND FACULTY MEMBERS INTERVIEWED

COLORADO STATE:

Charles Smith, Computer Project founder and Co-Director; Researcher; Writer of CHECK and DEVELOPMENT (additions to WRITER'S WORKBENCH), manuals for student users, lab monitors, and administrators; with Blake Stewart and David Klein, producer of AT&T's WRITER'S WORKBENCH "Collegiate Edition" Software

Rosemary Whitaker, Head, English Department

Stephen Reid, Acting Director of Composition

Blake Stewart, Director, Center for Computer-Assisted Writing

William McBride, Director of English Education

Beverly Atchison, Faculty Member

Nancy McKinley, Faculty Member

Ed Schamberger, Faculty Member

DREW:

Paolo Cucchi, Dean of College of Liberal Arts

Richard Detweiler, Head of Computer Initiative, Associate Vice President of Planning and Communication, Faculty Member

James Mills, Faculty Coordinator of Computer Initiative, Faculty Member

Joan E. Steiner, English Faculty Coordinator of Computers and Writing, Faculty Member

Stephen Obie, Aide Station Assistant, Peer Trainer, Sophomore Student

DREXEL:

Valarie Arms, Computer Research Project Director and Faculty, Writer of Software CREATE and RECREATE, manuals, journal articles

Lucy Boardway, Director of Office of Computing

Mildred Orenstein, Director of Composition and Faculty Member

OAKLAND:

Helen Schwartz, former Lab Director, Faculty member, Writer of software SEEN and ORGANIZE, the first computers-in-composition text INTERACTIVE WRITING, and journal articles

Wallis Anderson, Lab Administrator and Faculty Member

UAH (ALABAMA AT HUNTSVILLE):

Malcolm Richardson, Head, English Department

D.S. Neff, Faculty Member

Rose Norman, Faculty Member

UCLA:

Carol Hartzog, Director of the Writing Program

Jim Ocampo, Powell Library Learning Lab Director

Lisa Gerrard, Director, Conference on Computers in Writing and Faculty Member

Michael Cohen, Developer with Ruth Von Blum and others of WANDAH word processor plus CAI (now HBJWRITER)

Lourdes Everett, Secretary, UCLA Writing Program

Robert Cullen, Faculty Member

Gretchen Flesher, Faculty Member

UCSB (UC-SANTA BARBARA):

Porter Abbott, Head, English Department

Sheridan Blau, Director of Composition

Mark Ferrar, Head, Program of Intensive English, Writer of software GASP, and Faculty Member

Jeffrey Marcus, Manager, Microcomputer Lab

Joan Mitchell, Faculty Member and Writer of Documentation

UM (MINNESOTA):

Lillian Bridwell, Co-Principal Investigator of FIPSE Grant and Faculty Member, Writer with others of software ACCESS

Geoffrey Sirc, Administrator, Computer Lab and Faculty Member

Marion Larson, Co-Writer of ACCESS and Faculty Member

USU (UTAH STATE):

Joyce Kinkead, Director of Writing

Jan Ugan, Director of Writing Center and Faculty Member

Andrea Peterson, Assistant Director of Writing Center, Faculty

Jeannie Thomas, Faculty Member

WRIGHT:

Nancy DeSombre, Dean of Instruction

Marlys M. Styne, Faculty Member

Don Thompson, Faculty Member

6. BRIEF SUMMARY OF INFORMATION FROM EACH INSTITUTION

COLORADO STATE UNIVERSITY

Ruth Gardner and Jo McGinnis visited the campus and computer lab in fall 1985, interviewed five administrators and three faculty members while there, and received letters of information since.

Colorado State uses computers in more courses than any other school in this study: all freshman and advanced composition courses, including business writing, composition analysis for teachers, the literary essay, and nature writing--in fact, in all composition courses. All members of the Department of English faculty teach composition courses yearly, but only three faculty members do not use computers in some way. Their use is not required except for graduate students teaching the composition fundamentals course with a common syllabus. Otherwise faculty may decide whether and for how many essays to incorporate computers in their courses. That all but one or two do so is an indication of how matter-of-factly computers are an integral part of the composition program at CSU.

Obviously many students are also involved. From 4200 to 5000 composition students per year use the computer lab, making this one of the largest computer-composition programs in the country. Although some instructors require their use for one essay only, students may choose to use the computers for all of their essays.

Such wide use by students and faculty has taken place in four years. In 1980 Charles Smith wished to write a software program to help his students edit their papers and, joining with Kate Kiefer to do

so, discovered Bell Lab's WRITER'S WORKBENCH. Within a year it was part of the university's program. This extensive style-feedback program was designed for professional technical writers but has been adapted and expanded for the use of composition students at CSU and elsewhere by the efficient and humane faculty at CSU. It now includes seventeen programs, with new ones that check for vagueness, possible misuse of homophones, and paragraph development.

But there are several limits to how much faculty and students can actually use computers in composition on this campus. Actual physical space and time in the lab for this number of students mean that students must quickly type in their essays, run the WWB analyses of them, and leave. Each student is allowed to sign up for one hour per day but may use free terminals when available. The student then takes the printout to class for peer revising sessions, revises the essay at home, returns to the laboratory, calls up the on-line copy of the essay, and makes corrections and revisions before making the final printout to hand in to the instructor. Complaints about the trials of machines crashing were the only complaints of most students, who are enthusiastic about the use of WRITER'S WORKBENCH.

The Computer Lab at CSU contains four Onyx C8002s with 28 terminals and an AT&T 3B2 300 with five terminals. (By January 1986 two AT&T 3B2 400s will support 40 Wyse 50 terminals plus one console terminal and one M200A Data Products printer; the Onyx will be phased out.) There are four NEC Spinwriter and one C-Itoh dot matrix printers. The one-room lab is located near the English Department and faculty offices. It is open from 8 a.m. - 11 p.m. Mon. through Fri., 8

a.m - 7 p.m. Sat., and 8 a.m. - 11 p.m. Sun.. It is available for students registered in classes using computers and for others on a walk-in, space-available basis. Students sign up on sheets outside the lab door for up to an hour at a time per day. The lab Director, a Research Associate, and 12 lab monitors are available for help with computer problems. Help with composing problems is also available at the separate Writing Center. There is no lab fee for users, although all students since 1983 pay a 2 1/2% increase in fees to cover various special course fees, including those formerly charged for computer-assisted composition. 4600 students used the lab during 1985 fall and spring semesters.

Some instructors voiced reservations about students becoming too dependent on the technology, tending to regard the machine's pronouncements as god-like and any essay corrected by its guidelines as therefore perfect.

A more serious limitation is the emphasis on the final stages of composing. The emphasis on style leads more to editing than to substantive or organizational revising. Every administrator and instructor interviewed mentioned this problem and described his or her methods and suggestions for counteracting it.

But outstanding and encouraging is the support given by the English Department as a whole to the use of computers in composition as well as the support from the university as a whole. The preparation and intelligent planning and the research and publication by Smith and Kiefer have deservedly impressed the Department Head and the university administration and have resulted in support for this large and

successful project integrating computers into composition classes and programs.

Future plans include increasing the number of terminals, networking the AT&T terminals, creating an electronic bulletin board, upgrading and expanding software, finding new ways to emphasize earlier stages of composing, and perhaps doing research on IBM's CRITIQUE (formerly EPISTLE) and on whether students are influenced by availability of computers when choosing a school to attend.

DREW UNIVERSITY

Ruth Gardner visited the Drew Campus in December 1985, interviewed three administrators, two of whom are also faculty members, one faculty member, and one student peer trainer/Aide Station Assistant, and toured the academic computer support center. Two faculty persons and 22 students in two classes of freshman composition filled out our questionnaires.

A small school, Drew has 12 full-time English faculty members and requires freshman composition, of which there are eight sections per semester. A second required course is the freshman seminar on a selection of subjects in all disciplines but with much emphasis on writing, as well as on academic advising.

Drew is of special interest as one of the two schools in the study that provides every entering student to purchase a computer and as the first liberal arts school in the country to do so. Every faculty member who teaches freshman composition or a freshman seminar requires papers to be done on a word processor. (Every student has a computer,

every faculty member and professional staff member has a computer; there are computers everywhere on this campus, as well as an Academic Computer Center, described below.) As a group, all teachers of freshman composition or freshman seminar courses agreed at the beginning of the "Computer Initiative" in the fall of 1984 ago to fully incorporate computers into their teaching of writing. The Computer Initiative began when the faculty of the College of Liberal Arts voted in October 1983 to provide all entering freshmen with computers. The faculty, professional staff, and some students received their computers in the summer of 1984, and all freshman students received theirs in September. At present, about 1200 faculty, professional staff, and students have their own Epson QX-16s; others may use the many public-access micros in the residence halls and library. There are at least 1500 computers on the Drew Campus. The university as a whole stresses the computer as a tool; its use as a word processor is central across the curriculum, as well as in writing courses.

The Academic Computer Center contains two VAX computers with 16 terminals; a computer-equipped classroom with 28 Epson QX-16 micros, 28 Epson FX-80 printers, and a projector and large screen; an additional computer room with 10 Epson QX-16s, five Epson Equity micros, and 14 Epson FX-80 printers, three Digital Rainbow 100 micros, two Zenith Data Systems micros, an AT&T micro, and a laser printer; and an Aide Station attended by two students who provide help for hardware and software problems, either in person or on the phone, during the hours the Computer Center is open, from 9 a.m. to midnight Mon. through Thurs., 9 a.m. to 5 p.m. Friday, noon to 5 p.m. Sat., and noon to midnight

Sunday. Drew students may use the computer rooms as much and whenever they wish during these hours (although most writing is done in students' rooms). Help with composing is available at the separate Writing Center, located in the library.

Yet problems of compatibility exist even on this campus which has selected Epson micros from the beginning. Epson itself keeps changing both its basic computer and printer and its word processor (as would any company dealing with such a rapidly developing technology--this is the "new text edition" problem writ large and expensive). In spite of this minor problem, faculty and administrators at Drew feel that the Computer Initiative has been an overwhelming success in that computers are fully integrated into the scholarly lives of students and faculty alike.

In the future Drew plans full networking of all micros to each other and to the holdings of the library. Such networking is only a goal at present. The faculty are gearing themselves for constant training and retraining in this area of constant change.

DREXEL UNIVERSITY

Material from Drexel comes from letter and telephone interviews with one administrator and two faculty members. Fourteen students in one class filled out our questionnaires. In addition, Valarie Arms shared with us her drafts of several reports and articles about her grant activities and research results.

Drexel is the other school (a private technical university) that requires each entering student to purchase a computer (MacIntosh).

Therefore, again, every freshman and sophomore course, including composition, is a "computer course." Technical writing, a required course for juniors and seniors, has been a computer course since a year before the general computer requirement, thanks to the interest of Valarie Arms in writing software for both the generating and the revising stages of composition and to the FIPSE grant she received to test its effectiveness. A believer in holding classes in computer labs, Arms will continue to teach in the lab even when all of her students have computers in their rooms. In September 1984 all entering freshmen were required to purchase computers (resulting in a 30% increase in the freshman class). At Drexel, like Drew, the emphasis throughout the campus is on using the computer as an aid to instruction (the word processor as writing tool) rather than on specific course software. At Drexel too the computer's integration seems complete and matter-of-fact.

Arms feels that faculty training is a continuing necessity, that students must be given access time to labs beyond the course in which computers are required (not a problem at Drexel after all students have computers), that research is necessary before beginning a program, that instructors are needed more with computers than without, that holding classes in labs allows conferences and class-shared insights both, and that one of the primary effects of computer graphics on engineering students is to use images generatively, to create text rather than simply to enhance finished text.

OAKLAND UNIVERSITY

A private technical university in Rochester, Michigan, north of Detroit, Oakland had 6,400 undergraduates in 1985. After reading articles and attending presentations at national conferences by Helen Schwartz of Oakland, Ruth Gardner visited the campus and its computer lab in summer 1985 to interview Schwartz and the lab administrator. Nine students in one class filled out questionnaires.

Eight to twelve sections of freshman composition of 100 total are computer-composition sections. Two to three hundred of about 2500 composition students and 8-10% of the composition faculty are involved in the small program here. The computer lab consists of three rooms in the English Department, one of which opens to an adjoining classroom (without computers). There are three Apple II Plus and 18 MacIntosh micros in the lab, with six Apple Image Writer dot matrix printers. The room with 11 computers may be reserved for classes. Otherwise students simply sign up for the time they desire on a two-week log posted on the door. There is no limit to time per student. The University Lab Administrator, who is also a faculty member (and feels this is essential) is in the lab one or two hours a day and in and out but on call from her office across the hall. There are also student tutors, trained by her, on duty about half the time the lab is open. Both Administrator and tutors help with computer and composing problems. The rest of the time there is no supervision (and no theft). Students pay a lab fee of $1.00, buy and keep their own disks, and copy the word processor MacWrite for their use. The lab is used for Composition 2, Honors Composition, Business and Technical Writing, and

Modern Language Translation in German and Spanish.

Composition classes are taken to labs for introduction to using computers (two students per micro); then students use as they, or their instructors, wish. Spell Check is added in three or four weeks, then Graphics for technical writing, etc. Instructors vary "wildly" in their use of computers, though all must meet course standards, goals, and word minimums.

Although the composition program as a whole has not changed as a result of incorporating computers into some sections, the teaching of instructors in those sections seems to include less lecture, more group work in lab and class, and more formal training in methods of revision. A few instructors evaluate essays on line, and several keep grades on line. Instructors feel that students revise more, are more conscious of ideas and development, and are more objective because of using computers. About 75% of their students enjoy writing more and think their writing is improved. The only disadvantage given was difficulties for commuting students of using the lab.

Helen Schwartz designed the software program SEEN to help students internalize a procedure for writing about characters in a literary work by freely answering questions posed on screen, summarizing their answers into a "notice," which they then post on a class disk. Other students add comments for peer feedback and more sense of audience. Schwartz's text Interactive Writing encourages both instructors and students to design simple software exercises as needed. Her own software exemplifies flexible and creative use of the medium and has received national attention, but the administration of the university

chose to buy MacIntosh micros for the lab rather than the Apples for which the software was designed. Therefore her software is used more at other universities than at her own. In this case as in others in our study, the development of software for composing did not generate support from the university as a whole.

UNIVERSITY OF ALABAMA AT HUNTSVILLE

We were pleased to receive from this institution questionnaires filled out by an administrator, two instructors, and twelve students. Computer use in composition had just begun with the two sections of Business and Technical Writing taught during the fall semester of 1985. The Sperry Corporation donated 50 IBM-compatible Sperry micros and nine dot matrix printers. Thirty of the computers were placed in a classroom and 20 make up a lab. The lab is open from 8 a.m. - 10 p.m. weekdays and a few hours on Saturdays, open to all with no limit on time. Paid student workers, supervised by the Dean's assistant, provide some help for users. There is no cost to students, and disks are issued by attendants in exchange for student ID. WORDSTAR is the word processor used, chosen because of wide use and versatility.

The course was redesigned to incorporate computers; the overall composition program has not changed. Both sections of business and technical writing meet in the lab for every class, where students are trained in computer use as well as composition during class time. From the administrative view, computer use has resulted in changes: fuller revision, greater student interest, and more talk about assigned projects; some students' writing improves dramatically and all are

"marginally better." Most students (up to 80-95% estimates by administrator and instructors) feel their writing has improved, enjoy using the word processor, feel writing is easier with it, are more objective about their writing, are more playful with words and ideas, and overall have a heightened interest and ambition in writing.

Computers will next be used at UAH in developmental composition.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Jo McGinnis and Ruth Gardner visited the UCLA campus in May 1985 to present a paper at the Conference on Computers in Writing sponsored by the UCLA Writing Program, to interview four administrators and two faculty members, and to visit the computer lab. Twenty-nine students from two classes filled out questionnaires. This campus was of interest to us in being the origin of the software WANDAH (Writer's Aid and Author's Helper), a much-praised "environment" for all stages of the beginner's writing process.

WANDAH includes a simple word processor and open-ended questions and suggestions to guide students through prewriting, organizing, and revising stages of writing--to help students internalize a workable writing process. It has since been sold by the UCLA Board of Regents to Harcourt Brace and is available commercially as HBJWRITER.

At UCLA its use is optional by instructors and as varied as the individuals using it. Because of limited lab facilities, however, it is used by only about 100-120 students or four to five classes (at a university of 23,000 undergraduates in 1985). The lab, called the Powell Library Learning Lab, consists of 20 IBM PCs with nine dot

matrix printers; it is located in the main library, centrally located on campus, in a room shared with audio-visual terminals. The computers can be used only by English Composition students in sections using WANDAH, but they can do all their course work there if they wish. They simply sign up any time and use the computers for as long as they wish, or for two hours if others are waiting. The lab is supervised by a Learning Lab Director, a weekend and night supervisor, two student monitors, and two staff persons for reception, phone, computer and AV problems, etc. The full-time Director helps with problems with WANDAH also. There is no cost to students, other than buying two disks for their own use. They are responsible for their disks, although the director will keep back-up disks for them in the office if they wish.

Students enter composition sections by chance, simply by registering for freshman composition. Most instructors expect 2-4 hours of work per week out of class at micros.

Instructors are self-chosen and self-trained. They feel that WANDAH allows them and students more time for focus on ideas, that from 80-100% of their students enjoy using it, make many more changes, write more freely, find writing easier, collaborate more, have better attitudes, including more self-esteem for basic writers and minorities, and actually improve their writing because they revise more. The only problems instructors see are the constraints of the lab situation.

But both instructors and administrators see problems in the lack of support from the university as a whole. Even the small lab of 20 stations for experimental classes will last only one year--the computers were to revert to the university's general supply at the end

of 1985. This is true even though the most successful software for composing to date was developed here (jointly between researchers in the Psychology and English Departments). This is a discouraging situation, one that suggests (here and at Oakland) that developing successful software does not necessarily lead to a strong computer/composition program.

[By fall of 1986, university support at UCLA had shifted. Not only were the Writing Programs allowed to keep the computers, they were also encouraged to submit a proposal to expand their lab by 140 computers.]

UNIVERSITY OF CALIFORNIA AT SANTA BARBARA

Ruth Gardner and Jo McGinnis were invited to visit the extensive computer labs at UCSB. We did so in October 1985 when we also interviewed three administrators and two instructors, and visited a class held in one of the computer-equipped classrooms. Twenty-one students in the Freshman Composition class we visited completed questionnaires.

Only 12 or 13 sections of about 110 sections of freshman composition use computers. The use of computers is obligatory in some sections of the Program in Intensive English (for disadvantaged students), and use in regular sections is expected to grow quickly as the number of interested teachers grows. Sections are not designated as computer sections, and students do not know they are registering for them. No administrative changes have been made in the computer sections, nor in the overall composition program. Computers have

caused changes in the Intensive English program, however.

The Microcomputer Lab is indeed extensive: it contains 70 each of Apple IIs and MacIntoshes with 512K, 28 IBM PCs, and 25 IBM ATs. There are 35 printers for the MacIntoshes, ten each for the Apples and IBMs, and local networks. This hardware is contained in two IBM labs, two MacIntosh labs, and one Apple II lab, all set up as classrooms in the campus Microcomputer Lab. The Mac Lab is used most often for composition classes, although all four classroom labs serve the campus as a whole. Because of its unique classroom capabilities, the Mac Lab deserves detailed description: it is set up with 25 Macs at desks in two rows along the sides and two facing each other in the center. Six printers complete the row along one side. In front there is a large lectern with printer and a Mac connected to four large monitors mounted high near the corners of the room.

Only students whose instructors request time for their students and schedule them for the semester may use the labs, which are open from 7 - 1 a.m. Sun. - Thurs., and 7 a.m. - 7 p.m. Fri. (Sundays are heavy-use days). Students may sign up for more time on a space-available basis. There is no cost to students except for buying two disks pre-formatted for their course at the lab. Appropriate instruction sheets accompany the disks. Students check out software disks as they enter the classroom lab, leaving student ID cards for them.

There are four full-time staff persons, a manager, an assistant manager, senior consultant, other senior consultants in specific subjects, and 50-60 student consultants for the lab. The students give

orientations as well as help with classes and software in their respective subject areas. A full-time technical operations manager and an assistant maintain the equipment in a complete service center.

In addition to all this, a large software and computer magazine library is maintained for university faculty members, who may special order any software for consideration.

The word processor most used for composition classes is MACWRITE, but others are available if desired. Other software includes spell checks, typing tutors, MACPAINT, THINK TANK, and for Intensive English, Mark Ferrar's own writing software called GASP. GASP helps students to arrive at a topic and to expand upon it. Intensive English instructors use a common syllabus developed by Ferrar. Other instructors use computers and software as they see fit, although all of them hold some classes on a regular schedule in the computer classrooms, usually one of two weekly sessions. These are attended always by student consultants who stay with the class all semester.

Most students (90-95%) using the labs say they want to own their own computers, an indication that they enjoy them and feel that their writing improves when using them. Administrators credit this to a lower level of threat and more control in writing for students, an ease of refinement which reinforced revising and increases fluency, and the attractive presentation, which makes students' writing more important to them.

Instructors in this department also are self-chosen and self-trained. The interest and enthusiasm of a few introduced others. Now a special interest group meets to discuss progress and problems in

teaching with computers. Stephen Marcus has written a handbook for faculty called Computers in Writing Classes to help them get started. Twelve to fifteen instructors use the computer classrooms, including instructors in all composition courses from technical writing to intensive English.

An English Department Lab for faculty use in the English offices has very different proportions: it contains two MacIntosh computers and two Imagewriter printers, and 2 IBM PCs sharing a letter-quality printer. Twenty more micros have been requested for over the next three years. Development of software is expected, although no released time is given for it. The English Department falls into two divisions, with 36 professors in the regular English program and 40 non-tenure-track lecturers teaching composition courses. Only one or two tenure-track faculty members use computers in their classes. Although lecturers are encouraged to use the labs, it is entirely up to them to develop materials and make arrangements.

Here, as at UCLA, legislative funding is very uncertain, so that no one can predict the future availability of money for computer needs. However, the university-wide commitment to a strong computer-classroom lab is a positive accomplishment and stresses the importance of support at a level beyond the Composition Department itself, especially in cases where the English Department is divided into literature and composition faculties.

UNIVERSITY OF MINNESOTA

Ruth Gardner and Jo McGinnis visited this campus during the yearly Conference on College Composition and Communication held in Minneapolis in March of 1985. We interviewed two administrators and one instructor; sixteen students in a junior-level technical-writing course completed questionnaires. We were interested in the program at UM because of the extensive publishing done by Lillian Bridwell and Donald Ross as co-principal investigators for a FIPSE project called "Integrating Computer Technology to Serve the Needs of Students and Teachers in Writing Courses." Although our time on campus and all of our attentions were limited by the pressures of the conference, we also had available to us the bibliographic and descriptive articles that have resulted from the three-year project.

The computer-composition program that has resulted is centered in junior and senior-level discipline-specific courses using a word processor (WORDSTAR) and other commercially-available software. Also central is a software program under development called ACCESS, an author system to allow teachers to build exercises for micros without using a programming language.

About 34 3000-level teachers may use the word processor in teaching their courses. About half do so. And about half of their students (about ten per section, about 170 students) use word processors. Only upper-division composition students may use the lab, but they may use it as available for all their coursework if they wish.

The lab consists of 24 IBM-PCs with 256K and six dot matrix printers at six tables of four micros networked to one printer each, plus four Xerox A20s. It is located in Lind Hall, where many composition classes are taught. A Computer Lab Administrator and student monitors who are computer science undergraduates supervise the lab. The monitors help with computer problems, the administrator with composing problems as time permits. Students have paid no costs because of the grant, but soon they may be charged $10 per quarter to cover paper and ribbons, etc. Disks are kept in the lab, but students will soon have to surrender drivers' licenses in exchange for software disks.

Trained instructors work with the Lab Director to give one hour sessions of computer training at the beginning of the quarter, with students sitting two at a terminal. Lab attendants also use printed instructions, groups, and tutoring to answer the range of ways students learn. Some instructors require at least one draft on the word processor; most leave its use optional for students. At UM no one is required to use computers. That about half of the instructors and students do so is an interesting and positive fact. (Perhaps if the lab were larger more of both groups would use them?) The chief complaint here, as elsewhere, is not enough access to the computers, a problem complicated by the fact that 48 percent of the students were composing on the screen from start to finish by the end of the quarter. This is of course the kind of complication most of us are aiming for.

Administrators and instructors see as benefits for students more consciousness of the different stages of composing and, therefore,

better products. Students seem to agree. (Timed recording of students' keystrokes as they compose is also being done at UM. When tallied and interpreted, this information may give needed data about what students actually do at each stage of writing.)

The three-year study leads to the conclusions that word processing is the central function of computers in composition courses (with other software available for individual uses by instructors) and that there is a need for a program that allows instructors to write exercises and open-ended writing guides quickly, a need addressed by the ACCESS program now being created at UM. Finally, a general conclusion is that the computer is more valuable as a tool controlled by writers than as an authority to direct them.

UTAH STATE UNIVERSITY

Jo McGinnis visited USU in December 1985. She interviewed two administrators, the lab director, who is also a faculty member, and another faculty member, and visited the computer lab. Thirty-five students from two classes of freshman composition completed questionnaires.

USU, like Colorado State University, uses WRITER'S WORKBENCH in its writing program. Like CSU's it is an inclusive program, including all 15 sections of freshman composition (about 375 students) per quarter and one or two sections of all other composition courses taught. A common course syllabus, created by the Director of Writing, is used. It calls for essays two and three of five total essays to be typed into the computer and run through WWB for feedback on style and

mechanics. Use by students after this is optional. A few mini-lessons on the use of the computer are given during class time. All essays, whether done on the computer or not, must now be typed. The computer has caused no changes in the overall composition program, where the emphasis remains on revision.

The word processor used is VI EDITOR, used on the mainframe with UNIX operating system and Televideo 912C dumb terminals. The lab consists of 21 of these and 3 IBM-PCs, but there are other stations around the campus. One Diablo letter-quality and one dot matrix printer are also housed in the lab. Students also have access to a laser printer. Students receive user names and passwords to use when they log in. They share user names with peer groups and instructors. Because of the networking to the mainframe, this is one of the few labs we visited in which students can call up each other's work for peer review and instructors can call up their students' work to read it. (Neither can change anything on files.) Both can offer comments via electronic mail, which "students love to get." The definite advantages of this capability are undercut because the number of technical users of the mainframe on campus limits available time for composition users.

The drop-in Computer Lab is part of the Writing Center, and only writing students are to use it, although others sometimes do. Only English students may have material printed out, however. Either the Writing Center Director or Assistant Director is always in the lab or the adjoining Writing Center. Students are trained to be lab monitors; help with both computer and writing problems is always available. A fee is charged students to pay for computer time, manual, and paper

costs. A two-hour orientation is given to students in the first weeks of the quarter, using the departmentally-created manual and training guide. Students are expected to work in the lab or at another computer station about two hours a week.

The Director thinks that two features are especially good: having the computer lab adjacent to the Writing Center and having many computer stations on campus. Administrators and instructors agree that revision has much increased since computers have been used, as has interaction between students and instructors because of electronic mail and computer conferences. Quality of essays has improved, they feel, because students are more open to suggestions for revision. In other words, ease of revising has improved both writing and attitudes toward it. Some few instructors, however, still worry about "the machine in the garden," about student dependency on machines, and perhaps about the increased emphasis on style caused by WRITER'S WORKBENCH. Others feel that attention to one aspect of writing carries over; that there are more global changes than ever in revisions. Research is planned to compare computer and non-computer sections of the same courses and longitudinal studies of the writing of students now in 9th grade (and using HBJWRITER) through high school and university.

WRIGHT COLLEGE

Wright is the only two-year school in the study. It is career-centered and part of the system of city colleges of Chicago. Ruth Gardner was invited to visit the school and lab by an enthusiastic faculty member ready to begin her first semester of teaching composition in a computer lab. She interviewed an administrator and two faculty members. One faculty member and 57 students from three freshman composition classes completed questionnaires.

There are 34 sections altogether of 101 composition courses. Students register by choice into one of the three computer sections, so labeled. These sections meet in the computer lab as a classroom at least once a week (of three classes a week), but students are also urged to use it on their own time. Three business classes are also occasionally scheduled in the lab. Adult education classes sometimes use it evenings and Saturdays.

The lab is located in a large room near English Department offices, with 30 IBM PCs (13 with 256K and monochrome monitors and 17 with 512K and color monitors) and 15 IBM Graphics printers. There is no cost to students, but in the future they will pay for their disks, which are issued and kept on file at the lab. The use of BANK STREET WRITER was required; use of WORDSTAR as well as THINK TANK, CARET PATCH, and WORD PROOF was optional.

Computers have changed the courses in which they were used. They now have fewer but longer writing assignments and more revisions of each. The goals of the very general departmental syllabus did not change; they wish to promote creativity and independent thought in

writing while teaching the processes of writing. Increased student interest and effort have resulted from the semester's writing with computers, and they write more, write more drafts, and think more about their writing processes. Their instructor feels that from 80-90% of her students enjoy using computers, think writing is easier and better with them. She thinks that writing with computers seems more important to them, more job-related, more up-to-date, that they take more pride in neater appearance of their work, and that peer and peer-instructor relations are better in the lab. Yet using the lab is difficult for non-typing and commuting students, and software is needed for help in prewriting and editing.

SUMMARY

The information in this section will be presented in the following sections of the study in several juxtapositions, so that what is comparable among the uses of computers in composition at these unique institutions can be suggested.

Three simple classifications can be drawn here, to be fleshed out by reading further:

1. Levels at which the institutions are committed to the use of computers in composition:

   a. One or several persons using computers in their classes:
      OAKLAND, UCSB, UAH, WRIGHT

   b. Person or group with research or development grant:
      DREXEL (upper-division), UCLA, UM

c. The English Department: CSU, USU

d. The institution as a whole: DREW, DREXEL (lower-division)

2. Primary focus in the use of computers in composition instruction:

a. As a writing tool (emphasis on word processing): DREW, DREXEL, OAKLAND, UAH, UCSB, UM, WRIGHT

b. As writing instruction (emphasis on other CAI): CSU

c. As both: UCLA, USU

3. Primary ways computers are used in composition instruction:

a. All or some classes meet in labs with instructors: Drexel (upper-division), UAH, UCSB, Wright

b. Students work individually in university computer laboratories: CSU, Oakland, UCLA, UM, USU

c. Students work individually in their rooms: Drew, Drexel (lower-division)

Some of the many other possible classifications are implicit in the comparative sections which follow.

7. COMPOSITION COURSES IN WHICH COMPUTERS ARE USED

CSU: Composition Fundamentals, Freshman Composition (one term), Advanced Composition, Composition Analysis for Teachers, Literary Criticism, Nature Writing, and (in the College of Business) Business Communication and Report Writing--all composition courses offered in Business and English but not in Technical Journalism.

DREW: All sections of Freshman Composition (one term) and the Freshman Seminar (one term) use computers intensively. But all composition courses use them in some way, since all freshmen and sophomores own their own computers and routinely use them for writing.

DREXEL: Technical Writing, required course for juniors or seniors (students also use the computer lab for their Senior Projects), and every course for freshmen and sophomores, who own their own computers.

OAKLAND: Freshman Composition (two terms), Basic Composition, Honors Freshman Composition, Business and Technical Writing

UAH: Business Writing, Technical Writing

UCLA: Freshman Composition (two terms), Intensive Freshman Composition (three terms), Advanced Composition

UCSB: Freshman Composition (two terms), Intensive Freshman Composition (three terms), Advanced Composition

UM: Junior and Senior Level Discipline-Specific Technical Writing courses

USU: Freshman Composition (one term)
Computer use required for 3 of the 5 essays assigned. In all other composition courses computer use is optional, but there are computer sections in all courses--this is a vertical program.

WRIGHT: Freshman Composition (two terms), Basic Writing Skills

SUMMARY: Eight of the institutions in the study have integrated computers into freshman composition, four into all sections of regular freshman composition and four into some sections (one of these uses them in all sections of basic composition, however). Two schools use computers only in upper-division business or technical writing courses. Five schools have integrated computers into all composition courses, two of them into every section of every course, three into some sections of each course above the level of freshman composition (which are accounted for above).

8. NUMBERS OF COURSE SECTIONS AND STUDENTS INVOLVED

CSU (13,900 undergraduates in 1985):

Freshman Composition — 65 sections in spring 85 semester
ca. 3000 students per year

The use of computers is optional for instructors in required freshman composition courses. In 60% of the courses the use of computers is required for all essays; in the other 40%, its use is limited to one or two essays or optional. Only 1 or 2 sections do not use the computers at all. Including students from basic writing, advanced composition, business writing, and other writing courses offered, from 4200-5000 composition students use computers in the lab every year (careful counts are kept), making this probably the largest computer-integrated writing program in the country.

DREW (1,500 undergraduates in 1985):

Writing (English 1) — 8 sections per semester of 8 total
ca. 320 students per year

In all freshman composition (and freshman seminar) courses word processing is incorporated into writing instruction and assignments. Every freshman and sophomore student uses his or her computer, making this one of the five U.S. campuses in 1985 with 100% of lower-division composition students using computers.

DREXEL (7,287 undergraduates in 1985):

Freshman Composition (3 quarters required) ca. 1600 freshmen

This is another of the campuses with 100% use of computers for lower-division students.

Jr./Sr. Technical Writing (R207) 4 sections of 8 total use lab
ca. 80 students

These tech writing figures are from 1983-84, before micros were purchased by all students.

OAKLAND (6,400 undergraduates in 1985):

Freshman Composition 12 sections, fall 85 (of 100 total sections)
ca. 300 students

300 freshman composition students of about 2500 are in computer-composition sections.

UAH (2,640 undergraduates in 1985):

Business Writing 1 section fall 1985

Technical Writing and Editing 1 section fall 1985

All sections use computers; one section of each is offered per semester. Computers are not yet used in other classes.

UCLA (23,000 undergraduates in 1985):

Freshman Composition ca. 100-120 students on lab roster

UCSB (14,840 undergraduates in 1985):

Freshman Composition	10 sections of 110 total sections
Intensive English	18 sections of 18 use computers
	ca. 420 per term

UM (32,400 undergraduates in 1985):

Jr. and Sr. level discipline-specific technical writing courses use computers. Use is optional for instructors and students.

About 17 courses of the 35 offered use computers

About 10 students per section use them, ca. 170 students

USU (8000 undergraduates in 1985):

Freshman Composition	15 sections per quarter of 15 total
	ca. 1250 students per year

Computers in Freshman Composition required. Use in writing courses beyond F.C. optional. All other composition courses have one or two computer sections, for an additional 1250 students using computers.

WRIGHT (5,900 undergraduates in 1985)

Freshman Composition (English 101)	3 sections of 36 total
Basic Writing Skills (English 100)	4 sections of 19 total
	ca. 150 students used computers in fall 1985

Only two instructors used computers in the newly-opened lab.

SUMMARY: The numbers of sections involved when 100% of the course are computer sections range from 2 (UAH) through 8 (Drew), 15 (USU), 18 (UCSB), and 30 (Drexel), to 65 (CSU). The percentages of courses in which computers are used in some sections only range from about 4% (4 or 5 computer sections of over 100 total sections at UCLA), 10% (UCSB), 12% (Oakland and Wright), to 50% (UM).

9. NUMBERS AND KINDS OF LABS, HARDWARE, SOFTWARE, LAB PERSONNEL AND USERS

CSU

Lab: Center for Computer-Assisted Writing, one room 45'x30'

Lab Hours: 8 am-11 pm M-F, 8 am-7 pm Sat, 8 am-11 pm Sun

Hardware: 33 terminals. 4 Onyx CA1002 with 28 terminals, 1 AT&T 3B2-300 with 5 terminals. 5 printers, 4 NEC Spinwriter dot matrix and 1 C-ITOH 8510 for AT&T. This will be increased to 60 terminals when 2 new AT&T 3B2-400s are installed by January 1986 (remodeling of lab completed).

Software: WRITER'S WORKBENCH, 17 different analyses of prose style, punctuation, grammar, spelling; MACH for basic writers on process of writing a paragraph; LEARN I & II keyboarding tutorials; & PREPPY, a file to edit.

Lab Personnel: Director (staff), works five-day week; Lab Operations Supervisor (Research Associate), GTA stipend + tuition, 20 hrs./week; Monitors (Work/study students chosen for merit and experience), 4.92/hr., 8-10 hrs./week each.

Lab Users: 2500 composition students spring 1985, 2100 fall 1985. Composition students may use, 1-2 hours/week each. They each type in a draft, run it through WWB, and after revising in class and at home, type in the final version. The text analysis programs are available to all students on a space available basis. Students in Composition Fundamentals have a required lab hour each week for revision exercises, MACH, and WRITER'S WORKBENCH.

No fee, but a 2 1/2% increase in all students' fees in 1983 covers the cost of the lab as well as other special course fees formerly assessed campus-wide.

DREW

"Lab": Because of the Computer Initiative, Drew has no computer "lab" as such. The Academic Computer Center, located in the basement of Brothers College, the main classroom building, contains a cluster of facilities, including a computer-equipped classroom, another computer-equipped room, an Aide Station, a room containing the VAX mainframes and equipment for two electronic bulletin boards, a three-room office for the manager, software librarian, and secretary, and an office for a full-time computer technician.

Center Hours: 9 am - midnight M-Th, 9 am to 5 pm F, noon to 5 pm Sat., noon to midnight Sun., but most writing of freshmen and sophomores is done in dormitory rooms with individual micros.

Hardware: 2 VAX computers and 16 terminals; 38 Epson QX-16 and 5 Epson Equity micros, 3 Digital Rainbow 100 micros, 2 Zenith Data Systems micros, and one each AT&T 6300, IBM-PC, Apple IIe and MacIntosh micros; 42 Epson FX-80 printers; one projector and large screen; one video camera and screen; two electronic bulletin boards.

Software: VALDOCS+, WORDPERFECT, ENABLE

Center Personnel: 4 full-time staff persons: manager, software librarian, technician, secretary. 15 intensively trained student

assistants, two of whom are on duty at the Aide Station overlooking one of the computer rooms at all hours the Center is open, paid $3.35-4.00/hr. 12 hours a week, as well as 15 peer trainers for mandatory, one-hour weekly training sessions the first six weeks of the fall semester.

Center Users: All freshman and sophomore writing done in dorm rooms; many juniors and seniors use the computer rooms for writing. All students (as well as faculty and staff) use the Aide Station for help. All Drew students, faculty, and staff may use the Center at available hours. No fee, but starting with the freshman year, students have $420 added to tuition each year to "pay" for their computers.

DREXEL

Lab: PRIME Lab being phased out for English; Computer Lab in Korman Center, plus 2 computer classrooms, plus clusters in library and in dorms. Consolidation planned.

Lab Hours: ? (Most writing done in rooms at any time)

Hardware: 60 televideo terminals driven by PRIME 750 minicomputer, being phased out for English in favor of MacIntosh micros purchased by all entering students. 1 classroom with 30 512K Macs with 2 monitors for instructor's micro. 1 classroom with 30 128K Macs. 30 Macs & 4 printers and 16 Macs with printers in lab, 12 Macs in library cluster, plus a portable Mac on a cart.

Software: AFCAD word processor for the PRIME, MACWRITE for Macs, CREATE, RECREATE (by Valarie Arms) for PRIME use

Lab Personnel: Labs supervised by 4 graduate assistants

Lab Users: Any Drexel student may use for any purpose; about 1,000 students use every 10-week quarter. Only technical writing students may use PRIME lab.

OAKLAND

Lab: Wilson Hall Apple Lab (725 sq. ft.) in the Composition Department, of three rooms, one of which opens to adjoining classroom

Lab Hours: 1st third of semester: 8 am-5 pm

2nd third: 8-5 plus 2 evenings until 9 pm and 2-5 Sun.

Last third: 8 am-9 pm M-Th, 8-5 F, 12-5 pm Sat., 12-9 pm Sun.

Hardware: 3 Apple II Plus, 19 MacIntosh microcomputers, with 6 Apple ImageWriter Printers (laser printer for faculty use, not in lab)

Software: MACWRITE, APPLEWRITER; SEEN & BEGINNINGS (both by Helen Schwartz of Oakland)

Lab Personnel: Director (faculty position), one course released time to administer lab, office across the hall; Student tutors, selected from computer courses on basis of merit, staff lab only half the time the lab is open

Lab Users: Students in computer sections of freshman composition, about 200 students winter 1985. Students pay $1.00 lab fee.

UAH

Lab: Computer lab and classroom

Lab Hours: 8 am-10 pm weekdays, a few hours Sat.

Hardware: 30 Sperry computers in classroom, 20 in lab, 9 dot matrix printers

Software: WORDSTAR

Lab Users: Business and Tech Writing classes meet in computer classrooms. Any composition student may use lab. No fee.

UCLA

Lab: Part of Powell Library Learning Lab

Lab Hours: 8 am-9 pm M-Th, 8 am-5 pm F, 12-5 pm Sat, 12-9 pm Sun

Hardware: 20 IBM PCs with 5 IBM Graphics and 4 Epson dot matrix printers

Software: WANDAH ("Writer's Aid and Author's Helper")

Lab Personnel: Learning Lab Director, Lab Manager, Weekend and Night Supervisor, 2 student lab assistants, 2 additional staff persons

Lab Users: English composition students whose instructors are using WANDAH may use as much as they need unless it is crowded. No fee, but students required to purchase 2 floppy disks @$2.50.

UCSB

Lab: Microcomputer Lab, consisting of 5 computer classroom labs, offices, technical center, software library

Lab Hours: 7 am-1 am Sun-Th, 7 am-7 pm F, Closed Sat

Hardware: 70 Apple IIs, 2 Mac labs with 70 512K MacIntoshes, 1 lab with 28 IBM-PCs, 1 lab with 25 IBM-ATs; 70 Apple & Mac printers, others

Software: MICROSOFT WORD, MACPAINT, WORDSTAR, APPLEWRITER, MACWRITE, WORD, HAYDEN'S SPELLER, TYPING INTRIGUE, GASP, others

Lab Personnel: Manager, Assistant Manager/Senior Consultant, Administrative Operations Manager (all full-time staff positions), Senior Consultants, and 50-60 Student Consultants

Lab Users: Students in courses whose instructors reserve lab time. Classes meet in labs once a week, and instructors schedule 2-6 hours per week of lab time for students. No fee to students, but they must purchase formatted disks from the lab.

UM

Lab: 1 Computer Lab, located in the same building as composition faculty offices and many composition classrooms

Lab Hours: 8 am-10 pm M-F, 4 or 5 hours Sat

Hardware: 24 IBM PCs with 256K, 4 Xerox A20s; 2 C-Itoh printers and 4 Epson dot matrix printers

Software: WORDSTAR and Random House PROOFREADER, GRAMMATIK, ACCESS in development

Lab Personnel: Computer Lab Administrator (also instructor of composition); Lab monitors (computer science undergraduates)

Lab Users: Only upper-division composition students may use, but they may use as they wish; many use it for all their classes. No fee, but they soon will be charged $10/quarter to cover paper, ribbons, etc.

USU

Lab: Writing Center

Lab Hours: 8:30 am-3:30 pm M-F, 6-9 pm M-Th

Hardware: 21 Televideo 912C terminals to Unix system mainframe, 3 IBM PCs, 1 Diablo letter-quality printer, 1 Printronics printer, and others around the campus.

Software: VI EDITOR and WRITER'S WORKBENCH

Lab Personnel: Director (faculty position); Asst. Director (staff position), Writing Tutors (GTAs), Student lab monitors (hired on basis of previous computer experience, paid $3.35/hr.)

Lab Users: Students in computer sections at each level are expected to use the lab about two hours a week on a drop-in basis. They type in their essays, run WWB, revise and type in changes. Students pay for computer time, manual, paper.

WRIGHT

Lab: Microcomputer Lab, 25'x36'

Lab Hours: 8 am-10 pm M-F, some Sat hours

Hardware: 13 IBM PCs with 256K and monochrome monitors, 17 IBM-PCs with 512K and color monitors, 15 IBM Graphics printers

Software: BANK STREET WRITER, WORDSTAR (optional), WORD ATTACK, SPELL IT, TYPING TUTOR, English Skills Tutorial, Harbrace CARET PATCH, IBM WORD PROOF, THINK TANK

Lab Personnel: Supervisor (staff) plus student assistants and peer tutors trained in software and composition

Lab Users: Students of instructors who teach computer sections. No fee. Disks issued to students.

SUMMARY:

Labs: Of the ten schools, six have single-room computer labs, one of which shares space with an AV lab. Of the multiple-room computer facilities, one has two rooms, two have four rooms, and two have five rooms with computers in them, and all have computer classrooms (two have one classroom, one has two, and one has five). The two largest facilities, at Drew and UCSB, include supporting rooms for software libraries, offices, and technical repair centers.

Lab Hours: Most labs are open weekdays from 8 am to 9 pm (at three schools) or 10 pm (three schools), one from 8 am to 11 pm, one from 9 am to 1 am, and one from 7 am to 1 am. Thus one lab is open 47 hours per week, four from 70-75 hours, one over 80, and two just over 100 hours per week.

Hardware: The range of numbers of terminals available to students is 22, 24, 25, 28, 30, 33, 50, 71, 119, and 193. The three largest numbers represent terminals for campus-wide use, however, and the others are primarily for English or composition use. Multiple-terminal systems include AT&T at two schools and, at one each, VAX, ONYX, PRIME, and UNIX. Micros used are IBM-PC (at five schools), MacIntosh (at three schools), Apple (at two schools), and at one school each, IBM-AT, Xerox, and Sperry. Printers are similarly varied.

Software: Wordprocessors include one BANK STREET WRITER, one VAL DOCS, one VI WRITER, one WANDAH, three MACWRITE, and three WORD STAR. Eight institutions use additional software, from commercial spelling and grammar checkers to WRITER'S WORKBENCH (at two schools). In addition, individuals or groups at six of these schools have developed their own software for writing (MACH, LEARN I & II, PREPPY at CSU, CREATE and RECREATE at Drexel, SEEN, BEGINNING, and ORGANIZE at Oakland, GASP at UCSB, ACCESS at UM, and WANDAH at UCLA).

Lab Supervision: Lab supervisors (also called lab administrators or managers) are used at all schools but two. One of these is run by four graduate assistants, and one is used primarily by classes by their instructors. At three schools, the supervisor is a part-time faculty position; at five it is a full-time staff position. The large all-campus labs support three or four full-time staff positions and 20-50 student tutors or consultants. All labs but one use some trained undergraduate or graduate students as monitors, consultants, and/or tutors.

Lab Users: At seven schools the computer labs may be used only by students in computer sections of composition classes. At two of the seven, composition students may use the computers for work in other classes if they wish, however. One schools allows any composition student to use the lab, whether in computer sections or not. Two schools allow any student on campus unlimited access.

At eight of these schools, students pay no fees. (At two of them, students must buy preformatted disks from the lab.) At one school students pay a $1.00 lab fee, and at one they pay for computer time, manual, and paper.

10. SOME INFORMATION ABOUT COSTS

Note: Costs of computer-integrated composition programs are difficult to calculate or even to estimate. The people who are most involved with integrating computers into the composition program often know very little about where the money came from or how much the equipment and software costs. The people who know the numbers are often unavailable for interview or they are reluctant to reveal specific amounts. Several of the campuses surveyed are using equipment that is on loan or scavenged from different sources. In addition, the costs of personal computers used by researchers and instructors who work at home cannot be measured. The prices paid for the equipment listed may vary considerably in the years since purchase. Costs are dropping rapidly for some kinds of computer equipment, while other costs are rising just as quickly. With these caveats in mind, the following numbers are offered for whatever purpose they may be considered useful.

CSU: The original hardware cost $183,000 in 1983, a figure that does not include the room renovation necessary for installing the computers. This cost was paid through the University Physical Resources budget and totaled $18,000. The money for the hardware was borrowed without interest charge from the university operating budget. At present a $108,000 budget item is allocated for new equipment and $25-30,000 for renovations and air conditioning as a result of the university's "computer initiative" to raise money for new equipment and facilities. At first a $15 charge was levied against all students taking the

computer course to pay for computer use, but in 1983 a 2 1/2% increase in student fees resulted in $50,000/year to operate/maintain the computer lab and retire the loan on the equipment, as well as to eliminate various course fees campus-wide. This sum does not, however, cover the cost of administrative salaries. While no computer lab fees are charged to students enrolled in computer writing courses, all university students pay the increased fees to cover costs for those who use the lab.

DREW: Drew borrowed $4 1/2 million for the Computer Initiative. It will be paid back in four years using tuition increment. Students pay with a $420/year increase in tuition allocated for that purpose. The original cost of equipment in the computer labs was $100,000, but Drew paid at most $20,000. Maintenance of equipment costs little each year; the Epsons are extremely reliable.

DREXEL: No information.

OAKLAND: University Dean arranged for purchase of MacIntosh computers for the English Department at original cost of $25,000-30,000. Covered by warranty. Engineering students repair machines at no charge. $4000 budget/year for tutors, ribbons, paper, etc.

UAH: No information.

UCLA: UCLA covered the equipment ($95,000) and maintenance and materials costs ($11,520) for a total of $107,020 out an existing IBM grant. (Service contract to outside company to maintain computers and costs of computer paper comes out of this.) An Exxon grant covered 50% director salary, released time from two classes a year for seven instructors, 50% secretary, consultants, and travel to professional meetings, for a total of $105,834. Additional funding from UCLA for winter and spring 1985: $21,750 for tutors, security, maintenance, etc.

UCSB: Through donations from IBM and grants from NSF and FIPSE, the hardware was acquired/purchased. IBM-AT's donated by IBM. IBM-PC's valued at $2400 and purchased through CORE funds. Apples purchased through diverse funding (private grants, FIPSE grants, Air Force) at $2400-2600. The 70 MacIntoshes cost from $2150 to $2600 each (168,000-182,000). Remodeling cost $125,000 in first six months of 1985 and is not finished. A budget of $440,000 last year for the UCSB Microcomputer Lab includes all administrative salaries. The English Department is billed $1.00 per hour per machine. Students purchase two formatted disks from the Microcomputer Lab.

UM: Cost of equipment: approximately $3000/work station (28 terminals= $84,000), paid for out of the FIPSE grant. The Xerox machines were bought with a maintenance contract of $1000/year. The PCs have no contract.

USU: The 21 Televideo 912c dumb terminals connected to the

university's mainframe cost approximately $300.00 each ($63,000)

WRIGHT: Original cost of equipment and installation was paid by an equipment grant from the Central Administration of the City Colleges of Chicago. Wright College has borne the costs of completing and staffing the laboratory. No extra cost is borne by the students at this time, but students will pay $2.00 for the data disks they use beginning in Spring 1986.

11. COMPARING ANSWERS BY INSTRUCTORS AND STUDENTS TO NINE SIMILAR QUESTIONS; COMPARING ANSWERS BY ADMINISTRATORS, INSTRUCTORS, AND STUDENTS TO FOUR ADDITIONAL SIMILAR QUESTIONS ABOUT WRITING WITH COMPUTERS

NOTE: Percentages do not always total 100 because questions left blank have not been tallied.

A. Instructors' and Students' Answers to Similar Questions

1) Instructors were asked for which parts of the writing process they require use of the computer; students for which part they used the computer. Both were asked to indicate Always, Sometimes, or Never.

Instructors	Always	Sometimes	Never
Invention	2 11%	10 52%	7 36%
Freewriting to develop ideas	1 5%	11 58%	7 36%
Organizing ideas and parts	3 15%	12 63%	2 11%
Writing drafts	11 58%	8 42%	0
Revising ideas, details, org.	13 68%	5 26%	1 5%
Revising expression, style, tone	11 58%	8 42%	0
Editing grammar, punct., spelling	10 52%	9 47%	0
Commenting on peers' drafts	5 26%	6 31%	8 42%

Students

Inventing ideas	18	8%	75	33%	93	41%
Freewriting to develop ideas	47	20%	85	38%	70	31%
Organizing ideas and parts	44	19%	93	41%	61	27%
Writing drafts	123	54%	60	27%	20	9%
Revising ideas, details, org.	115	51%	73	32%	8	3%
Revising expression, style, tone	92	41%	88	39%	27	12%
Editing grammar, punct., spelling	138	61%	52	23%	12	5%
Commenting on another's draft	10	4%	51	23%	129	57%

The most general conclusion to draw from these figures is that instructors assign and students use computers more during writing and revising stages than during prewriting, organizing, and commenting on drafts. Its consistent use peaks for instructors with revising the major elements of ideas, development, and organization, and for students with editing grammar, punctuation, and spelling (although only 8 student respondents "never" use the computer for revising ideas). Similar percentages (58 and 54%) "always" use the computer for writing drafts--no instructors and only 20 students "never" use it.

If twelve instructors always or sometimes assigned invention work on line, only 93 or 7.7 students per instructor did the work or were aware they were practicing invention while doing it. Figures for organizing on line are similarly disparate. The figures for freewriting on line are much closer: 12 instructors and 132 students, or 11 per instructor. (An average of 11.8 students per instructor answered questionnaires.) The computer is least used for peer

commenting on drafts, perhaps because the networking technology is not yet available at most schools.

It is encouraging that the computer is used most for what it is most suited for--revising. Its advantages for generating seem to be offset at many schools by the lack of lab time and quiet space required for thoughtful invention.

The data suggests that we need to be sure that students understand what part of the process they are working on, its purposes and goals, to encourage them to try what is assigned, and to make it possible for them to do the assignment with ease and dispatch in the facilities available.

2) Instructors were asked whether students tend to make more or fewer changes during drafting and revising when using the word processor and whether those changes were primarily local or global. Students were asked whether they make more or fewer changes during drafting and revising working with a word processor than they did with pen or typewriter and whether those changes were mostly in ideas and order or in words and phrases.

Instructors		Students	
More changes	16 84%		135 59%
Fewer	0		64 28%
Same number	0		27 12%
(Local/words & phrases)	12 63%		60 27%
(Global/ideas & org.)	0		26 12%
Both	4 21%		42 19%

Sixteen instructors (84%) thought that their students made more changes when writing with computers (although the majority thought the changes were primarily local). Only about 59% of students agreed that they made more changes with the computer, and 12% that they made fewer! The twelve per cent may reflect those students not at ease with moving paragraphs (62 students, or 27%) and/or those who think they did not receive enough training in word processing to be completely comfortable writing with it (38 students or 17%). Almost 30% think they make the same number of changes no matter what tool they use.

One instructor wrote that global changes occur only when essay assignments, individual conferences, and revision suggestions work: "Students <u>make</u> local changes and <u>learn</u> global changes. The computer facilitates the learning." This observation applies to the results of question 1 as well.

3) Instructors were asked if students tend to be more or less objective about their writing when they see it on the screen rather than on paper, students whether they are more or less objective about their writing when they write with a word processor than when they use paper.

<u>Instructors</u>		<u>Students</u>	
More objective	13 68%	103	45%
Same	0	41	18%
Less	1 5%	43	19%
Don't know	4 21%	23	10%

Again more instructors (68%) perceived students as more objective than students perceived themselves (45%). The unusually large number of "Don't know" answers by students may indicate a lack of understanding of the question, a possibility discussed by two instructors. Most instructors think that the screen has a distancing or objectifying effect for students. Students who gave reasons for less objectivity write "It is difficult to see the whole," or "Anything looks good typed." Reasons for increased objectivity include "I feel like I'm reviewing someone else's paper," "Because it doesn't look like mine, I'm more aware of strange looking and sounding phrases," "Since you can make corrections easily it's easier to criticize your own work," "It's easier to find and correct mistakes," "I get a better picture of what I'm doing." Two other students' reasons: "I think freer" and "It's psychological."

4) Instructors were asked if students pay more or less attention to their writing processes using the word processor, students if they pay more or less attention to process on a word processor than they did using paper.

	Instructors	Students
More attention	14 74%	105 46%
Same	2 11%	39 17%
Less	1 5%	59 26%

Several instructors agreed that they should share credit with the computer. Students who feel that they pay more attention mention that

their work is easier to see and to read and that writing is easier or more interesting. One sees more clearly because he is having more fun. One student writes, "I really work on my revisions," and several add that they can see the way their work will print out. Interestingly, students feel they can pay LESS attention for some of the same reasons: "I can easily revise," "I can edit later," "It's easier to read so less attention is needed," "I'm not so worried--it's simpler, it's quicker." A student who types poorly wrote that she had to pay more attention to typing, so less to her writing. These comments help to explain the discrepancy between instructors' and students' perceptions (74 to 46%) of the amount of attention paid to writing processes.

5) Instructors were asked if students write more or fewer words and/or pages, students whether they write more or fewer words and pages on a word processor than on paper.

	Instructors	Students
More	15 79%	100 44%
Same	2 11%	71 31%
Don't know	1 5%	0
Less	0	33 14%

Question 5 reveals the same discrepancy: instructors' perceptions of percentages higher than those of students about whether students write more when using word processors (79 to 44%), perhaps because students are thinking more about typing problems and about positive benefits of writing less (see below). Instructors add comments like,

"Some write more fully and fluently; most add material more readily in revision." One adds, "I have papers from before and after using the word processor to document this [increase in length]," and another that "even non-typists rarely write extremely short papers." One instructor has to set word limits to counteract quantity, but another celebrates fluency: "more thought-matter, more brain-to-finger movement, fluency. More is better because then students have to make the important less-is-more decisions."

Students who write more almost always mention speed and ease. Several write that it is hard to stop, one that is it "faster and funner." But because they know they can delete, one student "tend(s) to become wordy" and another rambles. Students who write less give some positive reasons: "The computer seems to say more with fewer words," "I see more what is nonessential," "It's easy to be concise." But several list typing problems, and one says, "The computer wears me out."

6) Instructors were asked whether students write more or less quickly, students whether they write more or less quickly on a word processor than on paper.

Instructors		Students	
More quickly	8 42%	129	57%
More, BUT...	5 26%	0	
Depends on typing	2 11%	0	
Less	2 11%	69	30%
Same	0	14	6%

These percentages are closer, with a total of 68% of instructors agreeing that students write more quickly to the students' 57%. Both groups qualified answers to this question, instructors adding that increased speed is not the whole story: "but the process as a whole slows down," "yet we all spend more time on their writing," "yet they work longer at the computer, making more changes as they write."

Of two instructors who said students write less quickly, one makes essentially the same point, that although computers may speed up the drafting stage, the process is slowed: "They write less quickly because they do more revisions and take more time with their writing." As one understates, "[writing less quickly] is not necessarily bad."

Students who write more quickly are not afraid of making mistakes, because of ease of correcting them later. One student writes, "My fingers move as fast as I think." Those who give less general reasons cite typing problems, although one gave a positive reason: "I analyze more using a word processor."

7) Instructors were asked whether students seem to feel more or less free to make mistakes, students whether they feel more or less free to make mistakes on the word processor than on paper.

	Instructors		Students	
More free	16	84%	173	76%
Same	0		8	3%
Less	0		31	14%

There is closer agreement here (84% instructors to 76% students). But although no instructors do, 14% of students think they are less free to make mistakes. These students' comments make clear that they are among the 44% who feel undertrained or unable to move paragraphs or those who do not type or type well. Three additional reasons are poignant: "Mistakes feel bigger on a screen," "I have to raise my hand to get help," and "Maybe it's subconscious guilt." More freedom is almost unanimously credited to ease of correcting and/or making changes with the computer.

8) Instructors were asked if students felt more or less free to begin writing in the middle, student if they felt more free to begin writing in the middle or wherever they wished.

Instructors		Students	
More free	4 21%		108 48%
More, with instruction	5 26% (total 47%)		0
Same	2 11%		59 26%
Don't know	2 11%		0

Substantial agreement in perceptions occurs here, with 47% instructors and 48% students answering "more free." But over half of the instructors feel that students are free to begin writing in the middle only with instruction and encouraging assignments: "teaching, not computers, can do it," and "They have to learn to; they want to proceed linearly"). Those students who feel free to do so say it is

because the word processor makes it so easy to insert or revise without rewriting the whole. One adds that he or she begins anywhere, "simply because it can be done."

A total of 101 student respondents do not feel more free to begin in the middle. This question, in fact, elicited more categorical answers than any other: "I always start from the beginning," "I have to start with the introduction," "I never write that way," "You just don't start in the middle," "I never do," "It doesn't seem orderly," etc. One student simply writes the imperative "Always start at the beginning."

9) Instructors were asked if students play around more with words and ideas, students if they play more or less with words and ideas.

	Instructors	Students
Play more	10 53%	125 55%
Play more with help	3 16%	0
Honors students more	2 11%	0
Don't know	2 11%	0
Same	0	43 19%
Less	0	29 13%

Percentages are also close on more playfulness with writing (53-55%), although an additional three instructors think students are more playful only if encouraged intently ("Only a minority intellectually play"). Another two think that only honors students do much playing with words and ideas. One writes that students can be taught to play

more if the word processor and CAI are set up to encourage experimentation, as WANDAH is.

Students who think they are more playful on the computer stress ease ("It's no trouble," "On the computer it's not a chore") and interest ("I like working at a word processor," "It's more fun," "I play more intellectually, maybe because I'm using a new machine that my parents don't even know how to use!") Of the 29 who think they play less, a few say "Time is limited," "Who has the time?" "I'm busy reading the instructions," "I don't think as much, I just type it in." Of those who think they are the same no matter what means they use, one is general: "I hate writing," and one righteous: "I communicate with words; I play with toys."

B. Four Additional Similar Questions Answered by Administrators as well as Instructors and Students

10) Administrators and instructors were asked what percentage of students in their programs they thought enjoyed using the word processor more than typewriter or pen for writing. Students were asked if they enjoyed writing with a word processor more or less than with typewriter or pen.

<u>Administrators</u>

"Almost all" or 80-95%	4	40%
75%	1	10%
60%	1	10%

Instructors		
80-95%	14	74%
75%	3	16%
50%	2	10%
Students		
Enjoy using more	169	74%
Enjoy using less	23	10%

About fifty percent of administrators thought that from 75% to all students enjoyed using the word processor more than other ways of writing, while almost 90% of the instructors thought so. Of students themselves, 74% reported that they enjoyed using it more and 10% less. (At Colorado State, although only about 60% of students said on departmental questionnaires that they enjoyed using computers more and 15% less, all students felt they had not enough time in the lab and all wanted to have computers at home--which seems to indicate that while they did not enjoy writing with time limits in the lab, they did enjoy writing with the computers themselves. In Drexel's student evaluations, instructors noted the frequency of the words "fun," "games," and "play.") All agree that active dislike is very low. A typical statement is, "Only two or three dislike it, and they grew to like it as the quarter went on." One student who said he enjoyed it less wrote cryptically, "I can't always have a computer handy."

11) Administrators and instructors were asked what percentage of students, in their perceptions, feel that their writing has improved because of using word processors. Students were asked if they feel that their finished essays are better or worse when they use the computer.

<u>Administrators</u>		
"Most students"	7	70%
75-85%	1	10%
<u>Instructors</u>		
"Most"	5	26%
85-90%	2	11%
75-80%	6	32%
50-70%	2	11%
Only style improves	1	5%
<u>Students</u>		
Better	172	76%
Same	34	15%
Worse	12	5%

Eighty per cent of administrators felt that from 75% to "most" students thought their writing had improved with word processing, compared to 69% of instructors and 76% of students. These are surprisingly high figures for this basic question that is often avoided

because of difficulties in measurement. However, the answers are qualified by all groups. Researchers Kiefer at CSU and Arms at Drexel feel that their research shows actual improvement in the quality of writing. Although Kiefer claims improvement only in editing skills, she says that the habit of spending more time on one aspect usually carries over to other aspects of writing, even to spending more time on ideas. Arms attributes the general improvement to more revising. Administrators at UM, USU, and Wright agree that students' writing has improved with the use of computers. USU also attributes the improvement to revising ("The computer makes rewriting attractive"), while at UM the credit goes to more consciousness of the different stages of writing encouraged by the word processor. Department Head Richardson at UAH says their students are "marginally better, except for the few who improve dramatically."

Most instructors express reservations: "almost all improve, about 70% give the computer credit, and I think it makes improvements less painful," "Sure, I think they've improved, and I think it's because they revise. They revise because it's easier with a word processor." One agrees that about 75% of his students improve (although "most" think they've improved) and attributes improvement to a professional attitude toward their work as "a result of its professional appearance." An instructor at UCLA says improvement there results from "the teacher first and WANDAH second" and sees specifics of long sentences, more embedding and coordinating, more complex sentences and more wordiness (which she call "a plus for basic students").

Students too qualify their statements that their essays are better with the computer, with "sometimes," "or at least they look better," "more polished." One charming student writes, "I think it's more my class." Others are specific about how or why their essays are better: "more concise," "because I always revise," "more chances for revision," "I take more time." One finds drafts easier to reread, and one is "proud of content as well as appearance." Of the 12 who think their essays are worse, one says, "I am short on time" and one "worse in content, better in spelling." Among those that say their work is of the same quality on computer, some add "but neater," "but they look better," "content the same but presentation better."

12) Administrators and instructors were asked the primary disadvantages, in their perceptions, for students in using word processors. Students were asked what they would say now (immediately after completing the course in which they were used) is the worst aspect of their experience in writing with computers. If more than one person mentioned the same point, the number of answers follows.

	Administrators:	Instructors:	Students:
<u>Problems Specific to Computer Labs</u>			
Not enough access time or terminals for course in which assigned	5 50%	10 53%	12 5%
No access for students beyond original course	2 20%	3 16%	0
Having to go to lab	2 20%	8 42%	7 3%

Students want to use their own computers at home	1 10%	4 21%	0
Breakdown/Down time	1 10%	0	11 5%
Labs noisy, not conducive to thought	0	1 5%	6 3%
Labs product, not process-oriented	0	1 5%	0
Students miss errors on screen	0	1 5%	0
Waiting to get papers printed	0	0	13 6%
No time to learn all about computer	0	0	10 4%
<u>General Problems with Computer Use</u>			
Problems for non-typists	2 20%	2 11%	12 5%
Need for software for course	1 10%	1 5%	0
Bugs in word processor chosen	1 10%	1 5%	0
Finished looking copy--early closure	0	1 5%	0
Too much fancy formatting	0	1 5%	0
Intimidating to some students	0	1 5%	0
Constant updating--compatibility probs	1 10%	0	0
Constant need to update equipment and knowledge	1 10%	0	0
Faculty resistance and training	2 20%	0	0
Lack of support from university	1 10%	0	0
Losing work or fear of losing it	0	0	32 14%
Difficult to learn to use at first	0	0	19 8%
No bad aspects in cps, only lab	2 20%	2 11%	26 12%

This question asked administrators and instructors to list plural disadvantages ("primary disadvantages"), whereas students were asked to list "the worst aspect." Nevertheless, many of the students who answered listed more than one. Even with the difference in wording in mind, we can see that administrators and instructors SEEM to be more concerned with access problems than students. Yet students mention these problems elsewhere. Notice the last item listed in the series: "No bad aspects in computers, only lab," which applies also to the problems with computer labs. One empathetic instructor felt that "students' lives must revolve around the lab."

Predictably, students are not as concerned as instructors about possible problems for writers nor as administrators about updating, training, and financial support. Even problems of lacking typing skills concern larger percentages of teachers and administrators than students. Four concerns mentioned by a few students each are not mentioned at all by the other groups: the wait for printouts, frustration at not being able to learn everything there is to know about the computer, losing work or fearing its loss, and early difficulties of learning to use a computer. Reassuringly, the three groups agree most closely about there being no disadvantages with the computer itself, "only in logistics."

13) Administrators and instructors were asked their perceptions of the primary advantages for students of writing with computers. Students were asked for greatest benefit to them of their experience in writing with computers.

	Administrators:	Instructors:	Students:
<u>Advantages/Benefits in Students' Attitudes toward Writing</u>			
Generally improved	2 20%	0	0
More interest & motivation	1 10%	3 15%	0
Less threatened, less writers' block	1 10%	4 21%	0
Prof. finish = writing seems more impt	2 20%	3 15%	0
Prof. finish = more pride in	1 10%	2 11%	0
Clear copy = more objective	1 10%	2 11%	0
Writing seems more up-to-date	1 10%	2 11%	0
Writing seems more job-related	1 10%	0	0
Better relations with peers, instructor	1 10%	2 11%	0
Less drudgery in writing	1 10%	1 5%	0
More sense of control &/or choice	0	0	5 2%
More self-esteem, esp. basic & minority	0	2 11%	0
Discuss writing more, help each other more	0	2 11%	0
More confidence	0	0	2
Feeling confident & experienced/cps	0	0	51 23%
<u>Advantages/Benefits of Computers in Students' Writing</u>			
Computer literacy	1 10%	0	0
Ease of revision = improved rev. skills	4 40%	16 84%	43 19%
Increased global revision	2 20%	0	0
Increased writing fluency	1 10%	6 31%	0
Improved editing skills	2 20%	0	10 4%
Increased attention to ideas & org	1 10%	0	8 4%

Collaboration & peer work facilitated	1 10%	5 26%	0
Improved generating of ideas	0	2 11%	0
Increased attention to writing process	0	9 47%	0
Improved style	0	3 15%	2
Increased speed	0	0	23 10%
Better ideas, better quality	0	0	22 10%
Neater final copies	0	0	12 6%
General ease and efficiency	0	0	11 5%
Better typing skills	0	0	10 5%
Ease of saving work on disk	0	0	2

Again the discrepancy in wording exists, and again administrators and instructors agree about many specifics that students don't mention (like "The computer saves the teacher time to concentrate on logic and ideas"). Students may have included some of the specific attitudes toward writing in their more general "feeling more confident and experienced with computers." The emphasis is different, however, here as well as in the perceived benefits to writing itself. All groups mention improved revision skills (40, 80, and 20% respectively--the highest percentages for administrators and instructors and second highest for students), and students mention improved ideas. However, the emphasis for student otherwise seems to be more on an improved final product and for administrators and instructors on improved writing process.

This presentation of answers from the questionnaires does not do justice to the interest and variety of individual answers to this

question. Advantages listed by administrators and instructors often form a a kind of progression; they mention either one or a combination of measurable changes in physical outcomes, resulting perceptible changes in attitudes, or longer-term inferred or less perceptible changes in writing/thinking processes.

One instructor wrote, for instance, that "students produce neater, better-looking papers in which they can take more pride," giving a measurable physical outcome plus a perceptible change in attitude. Another lists both of these outcomes plus a hint of change in process: "Good-looking copy makes students feel more objective about writing." A third related comment seems to jump from measurable effect on writing ("students pay more attention to surface attractiveness") to inferred changes in thinking ("In a visual society text should be aesthetically pleasing. Attention to surface attractiveness carries over to higher standards in areas of thinking.").

The ideas above may be related to another progression: If the student product is more professional-looking, "it makes students feel writing is more job-related." This records a change in attitude and is probably related to the next statement: "Striking changes in students' attitudes for basic and minority students--increase in self-esteem." But another instructor writes, "Especially helpful for students in preprofessional courses." These statements about two extremes of students may make us hopeful that benefits of word processing are proving to be more democratic than predicted.

Another potential disadvantage--that computers may decrease human interaction--is refuted in the next statements, all about perceptible

physical changes and resulting changes in attitudes: "The ability of the word processor to produce multiple copies allows more peer editing," "Students talk more about assigned projects," "The computer encourages student collaboration and makes writing a group experience, " and "Students develop better relationships with each other and with the teacher." The computer lab may become the common room in a large writing program and may result in a new sense of community. This may counteract some of the disadvantages perceived in using a computer lab as discussed in question 12.

Some instructors write about changes in the writing process itself caused by using the computer, often moving directly to attitude and/or inference: "Students learn that writing is a process they have to go through," "It reinforces the idea that writing is recursive," "It helps slow students' processes down by encouraging more revision and multiple drafts," "Makes students more aware of process as a whole and how much control they can have over their own writing," "Heightens student interest in writing," "Increases students' feeling that writing is something worth doing and doing well," and "Students show a new seriousness AND a new element of play."

These answers suggest that our students may find themselves processing not just words but new attitudes and new writing and thinking processes.

12. OTHER ANSWERS OF INTEREST FROM THE QUESTIONNAIRES

A. From the Student Questionnaires:

1) 147 or 65% of students in these composition courses could type at the beginning of the course. Thirty seven more (16%) could type "a little." 42 (19%) could not type at all.

Typing seems basic and essential for all students. As computers are used at ever earlier grade levels, this problem will be even less prevalent than it is now.

2) Eighty students (35%) had used word processing before taking the class; 139 (62%) had not.

These figures too will change as more and more elementary and high school students are introduced to word processing.

3) One hundred thirty two students (58%) had positive expectations at the beginning of the class; 70 students or 31% did not. Among the most mentioned positive expectations were that using a word processor would be easier than typewriter and/or writing by hand (40 students, 18% mentioned), easier editing and/or revising (32 students, 14%), quicker (18, 8%), good to know how to use computers for the future (14, 6%). Seven students (3%) expected help with writing, five thought it would be "new and different" or exciting, and three that it would be fun. Four looked forward to neat, attractive drafts, three to having error-free papers, three to saving their work on disks, two to using the spelling check, and only one expected word processing to be easy to

learn.

Ease of writing and revising not unexpectedly top the list of positive expectations. 58% of students are completely positive, but only about 30% did not have any positive feelings; many felt balanced between the advantages and disadvantages of writing with computers.

4) 112 students (50%) had negative expectations and 94 (42%) had none. Forty students (18%) mentioned not knowing how to use computers or word processors, fearing that they would be hard to learn, especially the commands. Another 23 (10%) expressed more general fears of or confusions about computers. Eighteen (8%) worried about time problems and/or lab hours, twelve (5%) that they could not type. Seven feared breakdowns, six expense, four that they would lose their work, three that it would complicate writing, three that computers are not related to English, and two that they would not like the screen.

Half of students faced with composing with word processors had worries about doing so, and over half of these were apprehensive about learning the new skills involved. But fully 42% had no negative expectations.

5) 130 students (58%) can move paragraphs with ease, 13 (6%) with some ease, and 62 (27%) cannot move paragraphs on the screen.

Since moving paragraphs is often necessary for substantive and organizational revision, it is hopeful that only 27% feel they are completely unable to do so. For these students, training in using word processors has been unsuccessful for serious revising on line. Perhaps

these are the students who would eventually revise on printouts even after they learn to do so on screen, but they should have the opportunity to find out which works best for them.

6) 174 (77%) think that they received enough training in word processing to be comfortable writing with it; 38 (17%) do not. (See Administrators' question #3, pp. 83-84, for more information about student training.)

These answers, though reassuring, simply mean that we must find ways to reach students who need more training and give them the information and practice in forms they can use.

7) 128 students (57%) have noticed changes in their writing process after using the computer; 72 (32%) noticed no changes. About 34 (15%) feel that their writing has generally improved. The next largest number (about 20 or 9%) mention more revising or editing or making more changes. Ten or more feel that they generate ideas more quickly, nine that they are freer (four mention "less worry"; one is "more comfortable with the computer and with writing"). One adds that he or she has a new tendency to overwrite. Seven "write more," and nine feel that their writing flows more, especially in development or "longer paragraphs" and more examples and details. Several notice that they do more prewriting; others do more "unplanned writing." Eight are more organized, seven neater, five are better spellers, two more systematic. Five said they find writing more interesting or enjoy it more. Five said they spent less time because of the computer's speed, but five

said they spent more time on their writing, usually because they enjoyed it more.

The only negative change here is the one mention of a new tendency to overwrite. Otherwise it is a fine catalog of writing skills for students to be noticing and attributing to using computers.

8) 129 students (57%) would take another course in writing with computers, 19 more perhaps would (a total of 65%), and 41 (18%) would not. Many of these added that they could now use the word processor for their writing without more instruction and some that they were seniors now, or would be taking no more writing courses, so these figures do not seem to be very meaningful.

9) To the open question, "Is there anything else you would like to say about writing with a word processor?" there were 21 answers primarily negative and 39 primarily positive. Among the negative comments, 5 students felt the lab needed more computers, 5 needed more training in word processing, 3 more lab hours, 3 more tutors in the lab, 2 less waiting for papers to print out. Two felt that "word processing shouldn't be forced on English students" and one that the class spent "too much time dealing with computers and not enough with English." One wrote that "the actual writing is enjoyable but the defects of the lab aren't," a statement that seems to sum up many of the negative remarks. Five students made comment like "I would be happiest if I had one in my room" or "I need one at home for all my classes." Two students mentioned poor typing rather positively: "I am a poor typist,

it was hard. I'm glad I learned," and "excellent help for people who don't type well."

Among the many positive comments were 17 about enjoying writing with the computer: "It helped my writing tremendously," "It made life easier for me," "I am 110% comfortable using them," "I am more efficient--it's the wave of the future," "It's a darn fine writing instrument," "My writing is a lot better with computers." Eight students enjoyed using computers in their classes: "one of the most important aspects of the class," "keep offering this course with computers," "I wouldn't trade the experience," etc. Several made recommendations like "All students should be required to use word processing before graduation."

Except for students philosophically opposed to uniting computers and English classes, the negative comments address mechanical matters like machine breakdown or lab hours rather than question the suitability of word processing for writing itself. The positive comments, on the other hand, address basic relationships between word processing and writing skills.

B. From Instructors' Questionnaires:

1) Fourteen (74%) use computers for their own writing; three (16%) do not. Users create syllabi (6 instructors, 32% mention), course materials (5 mention), handouts and newsletters (4 mention). Other uses in their classes include students' research logs or journals, building data bases for research papers, self-evaluations, sentence combining exercises with sentences from students' papers, other

exercises on disk, group writing, combining individual drafts into longer group projects, taking exams, editing tech manuals, invisible writing. Instructors also use computers for grading, consulting, working on lab budget, teleconferencing, programming, writing PhD dissertation, creative writing, textbook writing, administrative tasks, games, graphics, and household accounting.

As one would expect, teachers who use computers in their teaching use them also in other ways.

2) Twelve instructors (63%) call themselves self-taught in using computers to teach composition. They mention learning by attending professional conferences, investigating computers for a writing center, leading faculty workshops, talking with other users and teachers, "being around" the developers of software, writing software programmed by others, using early mainframes, evaluating software, becoming a lab director who must train others, some programming. Most think that such self-training has been adequate, though it is necessarily on-going, or "never enough," as one put it. One faculty member took a three-week course on computers as a tool in teaching writing. Several report faculty meetings and workshops during the semester (generally seen as "not enough"). Graduate students at CSU and USU are trained in computer use as part of their orientation and through lab tutorials and meetings.

On-going training and retraining in computer use, software, and pedagogical applications seem essential. This is easier for persons interested enough to train themselves in the first place than for those

who aren't yet initiated. Technical training of instructors will of course become less necessary as more and more own their own computers, but continuing discussions and demonstrations of uses in the composing process and classroom are both practical and necessary.

3) Four instructors (21%) think the word processor functions as a vehicle for thinking by students. One writes, "It aids in conceptualization, lets students record ideas as they occur and play with putting them in different arrangements." Another writes, "Even if they simply type in a draft, the clear copy helps thinking." Seven instructors (37%) think it does so only with guidance from instructor, CAI, text, journal-writing, or some combination of these. Three (16%) think it cannot be used for thinking with the present time constraints on students; one does not know (she does not see her students at their writing), and two do not answer.

[Administrators also answered this question: At five schools they feel that students do use word processing for thinking because the positive carryover of the technology invites them to do their best, because the computer aids in conceptualizing the paper, and/or because the computer increases students' abilities to expand and develop ideas. Administrators from two schools express doubt about "this large question".]

This is indeed a large, and important, question, one which invites experimentation and research. If the computer proves to be of true value as a vehicle of thinking for students, then we need to determine under what conditions that value is optimal. Obviously, the computer cannot be used to promote thinking unless students can prewrite and

compose on line, unless they are not rushed, and unless the environment allows thought. Beyond these basics are the concerns about teaching to encourage or require thoughtful response in writing.

4) As to whether CAI feedback on style individualizes or standardizes students' styles, 5 (26%) think it individualizes, 4 (21%) think it standardizes, 4 do not know, and 3 do not use such checkers. Of the four who think it standardizes, two say this is helpful for poor writers. One thinks that such feedback at least makes students more self-conscious about language, although most style checkers are "only dictionaries--they interrupt, don't heed context, annoy, are intrusive." (Nevertheless, he uses them.) Several emphasize that students rather than programs are always the final judges; one says that whether or not such programs standardize depends upon whether the feedback is directive or thought-provoking.

[Administrators answering the same question give like answers: that software can standardize style because students don't question the need to conform and that some teachers also deify the machine but must teach individual uniqueness in relation to convention. Research at CSU shows reduction in error, which is "the kind of standardization we want, if voice and purpose remain individualized." From UAH comes the feeling that in our classes, style becomes more individual, but "outside English classes, I fear the worst." At USU, "We were afraid style would become more uniform (with WRITER'S WORKBENCH), but it hasn't happened." At UCSB style checkers are used very selectively, and at Drew, Oakland, UM, and Wright very little or not at all.]

Responders agree that with style checkers, as with any tool, its effect depends upon the way it is used.

5) All faculty members agree that paper use increases dramatically when word processors are used, one because students can't proofread on screen, one because students print out three or four versions of each draft, one because "many students need the aesthetic feel of paper, the aesthetic value of seeing the whole PAPER." Two say they contribute to paper use by telling their students never to leave the lab without making hard copies--two if they are handing them in. Another says, "The more drafts we assign, the more paper they will use." To one, "the waste is worrisome." To another it is positive: "Students are much more willing to trash it, to take exception to themselves, to grow, to throw away paper."

[To the same question, all administrators agreed that paper use has increased at every school because of requirements for more drafts. "And we want more drafts," says Sirc at UM, where signs in the lab read "Print it or lose it" and elaborate recycling measures are taken. He adds that "students need hard copy all the time." This is echoed at UCLA: "Students simply must print out their texts to get the most value from the computer."]

C. More From Administrators' Questionnaires:

1) Administrators' estimates of faculty members who are enthusiastic about using computers in composition classes vary from 100% commitment at DREW, estimates of 90 and 80% at USU and CSU, to "not many," judging by the small numbers who actually choose to incorporate them in their classes at OAKLAND, UCLA, UCSB, UM, and WRIGHT. At some of these schools, however, there is not enough equipment for more use.

2) Very few faculty members actively disapprove of the use of computers in composition classes, however. The few who do resent their use for humanities in general (the "machine in the garden" complaint, one administrator calls it) are uncomfortable learning from students or worry about student dependency on machines (part of the "garden" complaint?).

3) Administrators report that students are trained for using word processors in ways dependent on larger contexts. At Drexel, junior and seniors in technical writing courses had almost all used word processing earlier and need only to consult the manual. At the other extreme, Drew students receive one hour of training during summer orientation and an hour of mandatory instruction per week during the first six weeks of the fall semester. At most other schools in the study, students are given an hour-long hands-on orientation in groups at the beginning of the semester in which they take computer sections of composition. They also learn word processing through on-line tutorials (LEARN I, LEARN II, & PREPPY at CSU, exercises on using

WORDSTAR at UM, the WANDAH tutorial at UCLA, etc.), manuals created within the department (every school except UAH), tutors (CSU, OAKLAND, UCLA, UM), lab consultants or monitors (every schooL except UAH and, sometimes, OAKLAND). Many lab administrators mentioned that they consciously use a variety of training methods so that they can reach all students, no matter how they best learn.

4) Administrative perceptions of changes in teaching methods in computer-composition courses are remarkably uniform; at most schools they include more focus on revision, more drafts (plus greater length at several schools), more group work, and/or more classes meeting in labs, with less lecturing.

5) Changes in courses caused by the integration of computers vary. At CSU the recommended CO150 syllabus has remained unchanged. The CO101 syllabus has changed only to reflect the assigned lab exercises. At UAH courses were redesigned to include computers, as they were for Intensive English at UCSB and all freshman composition courses at USU, both of which have common course syllabi for all sections. At DREXEL the technical writing course remains the same, although conferences, peer work, and composing have moved to the lab. At DREW, changes vary with individual instructors; all require more revisions of each paper, while some take their classes to the computer classrooms between two to four times a semester. At WRIGHT instructors assign fewer and longer essays but more revisions. At OAKLAND, UCLA, UCSB, and UM, changes depend on individual instructors and "vary wildly," although all meet

basic goals and standards.

6) Computers have not changed overall composition programs at any of the schools investigated. To summarize a spokesperson for CSU, goals have not changed, only sharpened: now students MUST revise, must take more time with each essay, but the work is easier for them, and teachers can focus more on organization, coherence, content, and audience rather than editing. That the computer makes more possible the goals already articulated and in use at these varied institutions seems a distinct advantage. The goals of all programs studied seem to be to emphasize process and thought in writing, especially in prewriting and revising, and to improve students' attitudes toward writing.

7) Future plans for computers in composition at these universities include extending them to remedial writing courses at UAH, and to more sections of courses already using them at OAKLAND and UCSB (they are already used in all sections of all freshman composition courses at DREW and DREXEL, and in all sections of Freshman Composition and some sections of all other composition courses at CSU and USU). They also include developing software at six universities and doing research on computers in composition (effects of computers on creativity and on writing anxiety, longitudinal studies) at four schools.

Other plans are more specific. DREW officials are considering the possibility of networking all the many micros on campus, including access to all library holdings. Compatibility problems because of new

models and in spite of staying with the same brand of micro since computers were introduced on the Drew campus highlight the on-going need for permanent retraining of faculty, staff, and students, all of whom need a "change mindset."

At OAKLAND a dean is encouraging faculty to a sense of play and experimentation by providing released time and Apple IIe's to seven faculty members for projects from learning word processing to programming. At UCSB the English Department Head hopes to have 20 computers for a faculty departmental lab (for graduate students as well), with mobile units for use in individual conferences in faculty offices. And at USU they hope for more faculty computers, more terminal clusters around campus, and workshops in using computers.

Other plans and goals at one or more institutions include the following:

Upgrade and expand software, create more software for early stages of the writing process

Develop an electronic bulletin board

Double lab capacity so that students may use computers for later courses after we train them in freshman composition

Anticipate changes as every student has his or her own computer in the next two years

Continue development of author system to allow teachers to write their own software without using programming language

Offer to try out software programs being developed at other universities

Work for more computer access time so that students have time for invention, prewriting, and drafting as well as revising

Do study of whether use of computers in writing influences students' decisions about which school to attend

More conferences working together revising on-line

More computers for faculty in their offices.

This list of future plans for using computers in composition illustrates a general enthusiasm and forms almost a catalog of what needs to be done to forward the starts that these institutions have made. That the plans are based on experience and vary for individual contexts is important; this is not thoughtless expansionism but rather seems to be a reflection of the value administrators and instructors (and students) see in this new technology for writing.

At all schools administrators and instructors plan or hope to expand the numbers of sections and courses in which computers are used, to expand hardware and lab space, to develop software specific to the needs of their students, their courses, and even their own institutional or teaching styles, and to conduct necessary research to inform these changes. Plans for involving and training additional faculty members vary among these institutions also, and many persons we spoke to realize that constant growth and change in equipment and in understanding its potentialities for writing means that constant retraining and rethinking tools and methods are also necessities. Necessities such as these seem exciting and certainly appropriate to academics committed to continuing learning.

13. PRIMARY CONCLUSIONS AND SUMMARIES--A SUBSTANTIVE INDEX

NOTE: These brief statements form an index of sorts, since the numbers in parentheses following them refer to pages of this study on which the issues are discussed.

Section 7. Computer-Composition Courses: Eight schools use computers in freshman composition courses, five of the eight in all composition courses. Two schools incorporate them into upper division business or technical writing courses only (33-34).

Section 8. Numbers of Computer Courses: When computers are used in all sections of a course, the numbers range from 2 to 65 sections per term. When computers are used in some sections, the sections range from 4 to 50% of the total sections of the course (35-38).

Section 9. Labs (39-48)

Numbers of Computer Rooms and Computer Classrooms: Six schools have single-room labs and four have from two to five rooms, plus support rooms. Four schools have from one to five computer-equipped classrooms.

Lab Hours: The majority of labs at these schools are open from 8 a.m. to 9 or 10 p.m.

Hardware: In these labs, from 22 to 193 computer terminals are available to students. Five kinds of multiple-terminal systems, six kinds of micros, and a variety of printers are in use.

Software: All of the labs provide word processors, eight provide additional software, and at six schools software was developed within the institution itself.

Lab Supervision: At eight of the labs, faculty or staff supervisors are used; at nine schools trained undergraduate or graduate students are hired to assist.

Lab Users: Seven labs may be used only by students in computer composition sections, one by any composition student, and two by any student.

Lab Costs to Students: At eight schools, students pay no fees, at one they pay a $1.00 fee, and at one they pay for time, manual, and paper.

Section 10. Costs: Information about costs of establishing and maintaining labs at these institutions is incomplete and not comparable, but what we have is listed (49-52).

Section 11. Comparative Answers from the Questionnaires (53-73)

A. Instructors' and Students' Answers Compared (53-63):

1) Instructors and students agree that students use computers more for writing, revising, and editing than for prewriting, organizing, and commenting on peers' drafts (53-55).

2) More instructors than students think students make more changes when writing with a word processor than with paper (55-56).

3) More instructors than students think students are more objective

when writing with a word processor (56-57).

4) More instructors than students think students pay more attention to their writing processes when writing with a word processor (57-58).

5) More instructors than students think students write more when they use word processors (58-59).

6) A majority of both instructors and students think students write more quickly when writing with word processors (59-60).

7) Both instructors and students think students feel more free to make mistakes on a word processor than on paper (60-61).

8) About half of both instructors and students interviewed think that students feel more free to begin writing other than with the introduction with a word processor (61-62).

9) More than half of both instructors and students think students play more with words and ideas when using a word processor (62-63).

B. Administrator, Instructor, & Student Answers Compared (63-73):

10) Half of the administrators think that 75-90% of students enjoy using the word processor more than other means of writing, while 90% of the instructors think so. Seventy-five percent of students said they enjoy writing more with a word processor than with pen or typewriter, and only 10% said they enjoy it less (63-64).

11) Over 70% of both administrators and instructors think that students feel their writing has improved because of using the computers (many agree, with reservations); 75% of students also agree (65-67).

12) With most overlapping between administrators and instructors, each group sees different primary disadvantages in using computers in

composition, but similar percentages of all three groups agree that the disadvantages are not with computers, only with labs and software, etc. (67-69).

13) All groups list improvement in revising skills as a primary benefit of using computers for composing. Administrators and instructors seem to emphasize benefits to students' writing processes and students to the finished product (69-73).

Section 12. Other Answers from the Questionnaires (74-87):

A. From the Student Questionnaires (74-78):

1) 19% of the students could not type at all at the beginning of the computer-composition courses (74).

2) 62% had not used word processors before the course (74).

3) 58% had positive expectations at the beginning of the course; 30% did not (74-75).

4) 50% had negative expectations; 42% did not (75).

5) 64% can move paragraphs on a word processor at the end of the course: 27% cannot (75-76).

6) 77% think they had enough training in word processing to be comfortable writing with a word processor; 17% do not (76).

7) About 60% noticed changes (all but one positive) in their writing processes after using computers; 32% noticed none (76-77).

8) About 65% would take another writing course with computers (77).

9) Students had varied "other comments" to make (77-78).

B. From Instructors' Questionnaires (78-82):

1) Three-fourths of the instructors who use computers in their teaching use them for other professional and personal writing (78-79).

2) Most instructors are self-taught in using computers and in using them to teach composition (79-80).

3) More than half the instructors interviewed think the word processor functions as a vehicle for thinking by students, but many of them think this is so only with guidance by instructors (80-81).

4) Respondents (administrators also) agree that whether style checkers individualize or standardize students' styles depends upon the quality of the checkers and how instructors use them (81-82).

5) All instructors (and administrators) agree that paper use increases when word processors are used (82).

C. From Administrators' Questionnaires (83-87):

1) Administrators' estimates of faculty members enthusiastic about using computers in composition vary greatly (83).

2) Administrators think that very few faculty members actively disapprove of the use of computers in composition (83).

3) Student training for using word processors typically consists of an hour or two of hands-on orientation with some combination of on-line tutorials, manuals, and help from instructors, tutors, and monitors or consultants (83-84).

4) Administrators at most schools see similar changes in teaching methods (i.e. more student-centered) in the computer sections of composition courses (84).

5) At most schools individual instructors have changed courses to

incorporate computers; at a few, common syllabi incorporating computer use have been designed and are in use (84-85).

6) Computer use has not changed overall composition programs or goals, but has enhanced them (85).

7) Administrators have lively plans for the future: more equipment and thus more capabilities and more access for more students in more computer writing courses, developing more software, more training and continual retraining, more research, etc. (85-87).

14. SECONDARY CONCLUSIONS AND RECOMMENDATIONS

A. Getting Started

1. Preparation is essential, even though good luck and good timing play a part in successful integration of computers into the composition program. At CSU, according to Charles Smith, much of their success can be attributed to the fact that the software (WRITER'S WORKBENCH) was ready to be tested, the university purchased sufficient hardware for the entire program after the first year of tests, and the people were interested in working with the equipment and materials that became available. As in most instances of "lucky" timing, however, the important factor is that the people have been doing the research and preparation necessary to move quickly when the opportunity strikes.

2. Flexibility and inventiveness on the part of faculty and staff are essential. OAKLAND researchers and software developers were forced to adapt to a university purchase of MacIntosh computers even though their software was developed for Apple IIs. Dissatisfied with some portions of WRITER'S WORKBENCH, originally developed for technical writing, CSU adapted them for students of writing. Even DREW with its seemingly ideal situation of a computer-saturated campus has to deal continually with upgrading its hardware and software as new versions of both appear on the market.

The lack of money available for repair & maintenance of equipment has forced universities to come up with low-cost alternatives. For example, OAKLAND arranges for engineering and physics students trained

in computer technology to come and handle problems with computers. A physics professor designed a cable system to secure the computers.

The lack of money for enough computers for faculty members has led departments to think of ways to provide access without their having to compete with students for computer lab time. OAKLAND and UCSB plan next to have a portable computer for individual faculty signup, as Drew already does. This computer may be used, for example, to work with students on an individual basis during office conferences or to model a revision technique for a class. In addition to plans for a portable computer, UCSB has a new English Department mini-lab with computers available for faculty use.

3. A strong commitment from the University to provide a computer-rich environment for the students is ideal. Small private universities like DREW and DREXEL have done so. But even a large state university like UCSB shows how a commitment to computers at the university level gives individual instructors an opportunity to experiment.

University administrators can recognize and back with funds the research accomplished by faculty. They often don't. CSU's university administration was quick to recognize the worth of Smith and Kiefer's research and to back those efforts. At OAKLAND, UCLA, and perhaps other universities in the study, however, the development of software for composing did not generate support from the university as a whole.

4. Strong support is necessary from both the Composition Program and the English Department. Such support creates a spirit of a team effort. CSU represents an ideal two-way environment of support and communication between research faculty and administration. USU and DREW are other universities that represent cooperation in integrating computers into composition. Lacking strong departmental support, however, computer enthusiasts should at least hope for an environment in which they have the opportunity to experiment with new ideas. At UCSB, UCLA, UAH, and WRIGHT, instructors have been free to develop their courses integrating computers.

Lines of communication should be tended carefully. Successful integration of computers may be a matter of making sure the work researchers are doing gets communicated properly to the administration. One factor in CSU's success, according to the English Department Head, is that she is kept current with needs and concerns of the Computer Project. Helen Schwartz recommends publication in journals and participation in faculty computer committees as good ways to attract the attention of administrators.

5. Computer integration can have surprising results. At some universities, English Departments have found to their surprise that computer involvement has brought them increased respect and esteem from other departments on campus. When CSU's Kiefer and Smith received attention from their work with WRITER'S WORKBENCH, their department head perceived a rise in status on campus as a result, especially from the technical departments.

6. A university that offers computers integrated into their writing courses may be in a position to increase enrollment. At DREXEL, student acceptances rose 30% in the first year computers were required for all entering freshmen, though the same number of university acceptances were sent out. A preliminary survey at CSU suggests that students would select their school on the basis of whether computers were offered to students of composition; they plan more research in this area. Certainly the questionnaires show that students have few reservations about using computers in composition, and that 75% of the students feel their writing has improved as a result of computers.

B. Planning the Lab

7. Locating the computer lab seems to cause problems for almost all universities. OAKLAND had to locate their lab next to the language lab, because the special heavy-duty wiring was already installed, although a more central location on campus would have been more convenient. Computers need constant temperatures to operate efficiently, and in spite of the cold winters in Fort Collins, air conditioners had to be installed at the CSU lab to take care of rising temperatures the rest of the year and when expansion expected in 1985 placed an excessive load on existing room ventilation. In spite of the generally balmy weather and open campus at UCSB, the dust entering the open windows may force them to install air conditioning as well.

Opening classroom buildings on the weekend so that students have access to the computer lab was a problem at OAKLAND. The location of the computer lab at UCLA in the Powell Library has the advantage of

freeing the English Department from administrative worries, but with any expansion of the computer/composition sections the space would be tight. The computers are ranged about a large AV lab, and students who are writing share the facilities with others who are using other equipment. Because the lab is not conveniently located in relation to the Writing Program offices, not many instructors spend any time in the computer lab with students. Schools with choices prefer labs close to classrooms and English Department offices.

8. The ratio of printers to terminals is widely varied among the universities surveyed, but when the ratio is too high, problems result. The highest ratio of printers to terminals is at CSU with seven terminals per printer. The problem is exacerbated by the high ratio of users per printer (almost 400 to 1); UM researchers find that a ratio of one printer to three micros or terminals is a workable ratio. Drew faculty and professional staff members have a printer for every computer; freshmen and sophomores have one printer per dorm room, or one for every two computers. Mainframe computer lab administrators (USU, for example) complain about the lag time between printing commands and printouts during peak hours, when the computer lab is competing with other university users for the same terminal time. The average wait at CSU (where a number of terminals are served by a central computer in the lab) for a printout is twenty minutes, but in rare instances and at peak load times, students must wait longer to get a printout of a text with WRITER'S WORKBENCH analysis. [The recent acquisition of high-speed printers has helped to alleviate this problem

at CSU in spite of still high ratios of printers to terminals and of users to printers.]

9. Although computer lab administration is most usually a staff rather than faculty position at these universities, there are advantages to both. Wallis Anderson of Oakland feels strongly it should be a faculty position, first so that the emphasis remains curricular rather than administrative, second because of the increased clout a faculty administrator has, and third because of the different perspective others have of that person. Having an administrative assistant to run the lab is all right, but released time for the faculty coordinator should be negotiated, she feels. Jan Ugan of USU is another faculty member who is also the Director of the Writing Center. Andrea Peterson, who as Assistant Director handles much of the Writing Center Administration, has a staff position but teaches one section of composition as adjunct faculty.

Nevertheless, computer lab directors as faculty are in the minority for several probable reasons. English departments have the freedom not only to bypass faculty hiring requirements when they place a staff person into the lab administration position, but also to hire computer specialists not ordinarily found among English faculty candidates.

10. Keeping the computer lab under English Department rather than under general university administration has advantages, although the schools are evenly divided in this regard. CSU's Blake Stewart, a

computer specialist, now employed full-time by the English Department, no longer has to divide his time and his loyalties between the English Department and the University computer center. He and Geoffrey Sirc of UM are both involved with the continuing research in composition, a situation not likely when the computer lab director is not English Department staff. If, as at UCLA, the computer lab is not a part of the composition program but located in some distant building under the administration of the central library, the instructors do not become as involved with the process of computer-generated writing as they do when the lab is across the hall and directed by someone familiar and well-known. USU administrators emphasize that the presence of instructors in the lab helps to model writing behavior for students. Helen Schwartz counsels shared-use agreements if the lab is not under the direct administration of the English Department. She suggests avoiding computer science engineers and administrative users of computers in such agreements, who tend to take over the lab.

Nevertheless, having the university administer the computer lab takes the pressure off English Department administrators for coming up with new sources of funding and for the day to day maintenance of lab equipment and supervision. At UCSB, the university commitment to computers has provided the means for experimenting with computers in composition classes that would not have been available if it had been left up to departmental administration.

11. <u>Computer-equipped classrooms are desirable but rare.</u> A few universities have access to a computer-equipped classroom, but

considering the problems of access for large numbers of students, instructors will have to find ways of teaching writing with only very limited access to a computer classroom. At UAH, they are not yet faced with the problems of providing access to regular composition classes. Only Business Writing and Technical Writing and Editing courses are held in a computer classroom in which every student is seated at a terminal.

Few of UCSB's instructors are as yet using the MacIntosh computer classroom in the university computer lab, so access has not yet become a major problem. Until that time, the option for reserving a computer classroom is made possible by folding curtain-walls. The most used room for English instruction is one in which each student has a computer and four high resolution monitors stationed around the room show students what the instructor is modeling at her own computer. Jeffrey Marcus, Microcomupter Lab Manager at UCSB, would like to see more classrooms with computer monitors. He sees such monitors as an extension of the overhead projector. He would also like to install more individual carrels with computers so that instructors could hold office hours for individual conferences with students.

At OAKLAND, a small university, students can go into the small computer room with eleven terminals and double up at a terminal for classroom instruction on line. At UM, the lab director admits that "it's a mess" at the beginning of the semester when large numbers of students arrive in the computer lab for preliminary wordprocessing orientation. DREXEL has two computer classrooms, one with 30 MacIntoshes with two monitors connected to the instructor's terminal.

Another classroom has 30 128K Macs, but no instructor monitors are available. No printers are available in either of these classrooms, however.

12. Alternative configurations of hardware should be considered in a computer lab. Some composition courses, like UAH's Business and Technical Writing, work best in computer classrooms in which each student sits at a terminal. Certainly, a computer classroom that has available not only individual terminals but also demonstration monitors controlled from the instructor's computer is attractive. Yet, for orientation purposes, doubling and even tripling up at a terminal has advantages as well: Learning with a partner provides a way to reduce apprehension (sharing of responsibility with another) and to increase collaboration in learning wordprocessing techniques. Perhaps a small room like the one described at Oakland, into which an instructor can take a class for orientation sessions, should be available.

Still another option is a room with only one instructor-controlled computer that allows students to view word-processing techniques via high resolution screens. The lab at Drexel maintains a microcomputer on a cart that can be delivered to classrooms for demonstration purposes.

13. Networking has many possible uses and benefits in labs. Only USU, however, has a system in which students can call up each other's work for peer review, instructors can call up student files and give feedback on drafts, and all users can leave "mail" for each other via

the electronic bulletin board. Students may use the computer from other locations on campus than simply the Writing Lab--another advantage of networking. CSU hopes soon for a network system that will permit students to access the file-server computer from any terminal in the lab and that will permit an electronic bulletin board. DREW has two electronic bulletin boards for students, faculty, and staff now, and Drew administrators hope for complete networking of all PCs on campus, including access to library holdings. Helen Schwartz has worked out a system of leaving messages on diskfiles so that students can comment on other students' ideas, but the lab no real networking capability. At UCSB, Apple TalkNET in the MacIntosh labs soon will mean no disks will be needed and printing will be spooled, but instructors cannot call up a student's work on another computer. Lab administrators there are waiting for increased demand for networking before going to the expense of installing it.

14. Computer labs need to accommodate the many ways students learn.

Students learn to use the wordprocessor in different ways. Some work best with one-to-one instruction; therefore, helpful, friendly, non-intimidating lab assistants are essential. Some students work well with printed manuals; however, most computer documentation is incomprehensible to the average user. Most universities end up writing constantly revised user manuals for their students. Some students need only a short orientation, with followup demonstrations after they have had some experience. (Most can comprehend only a short orientation lecture before they have hands-on experience.) Several labs post

frequently used commands on the walls so that students have only to look up to see what to do. Most universities consciously provide a number of ways for students to learn, but most also feel the need for more work in this area.

15. Labs must provide students with help for composing problems as well as problems with hardware and software. The latter are easily handled by computer technicians and lab monitors trained in the software. The ideal situation is much like that of USU, where the Writing Center with its writing skills tutors are in an adjoining room, and the directors themselves are composition faculty. CSU attempts to provide writing skills help on a limited basis in the computer lab, but most students see their teachers or tutors in a separate Writing Center located in another building. Other universities, like UAH, UM, and Oakland permit their lab monitors, often students with expertise both in computers and writing, to help with problems in composition. Others, like CSU, discourage their helping with writing, asking lab monitors to restrict their advice to technical problems with the computers. Some instructors hold office hours and conferences in labs.

16. Computer labs ideally should be able to accommodate the needs of students in other writing classes after the original computer composition classes. Although many students go on to buy personal computers once they have taken a computer writing course, the university's commitment should keep in mind the needs of these students once they have acquired a facility with and a dependence upon the

technology. CSU instructors and administrators cite this problem not only for faculty who teach with computers but also for the students who exit the freshman computer writing course.

III. Involving the Faculty

17. Departments should treasure or import a computer enthusiast. The primary factor involved in integrating computers into composition is at least one enthusiastic and motivated researcher in the composition program. Not necessarily tenured professors, some of the most involved researchers are from "adjunct faculty." Their enthusiasm is contagious, helping to involve a more reluctant faculty to participate in computer technology.

Computer-proficient "gurus" often have to be imported from outside, however. English faculty teamed with the Psychology Department at UCLA to develop WANDAH. Blake Stewart at CSU was on loan from the computer center on campus before he was lured away to work full time for the English Department.

18. Faculty training becomes an issue for those not yet involved. Most universities allow the faculty to become familiar with computers at their own pace. Most faculty members originally learn by purchasing their own computers or--as at OAKLAND and UCLA--learning on the university mainframes. As one or two become computer proficient, they in turn become the unofficial instructors of others who become interested. Helen Schwartz suggests that a Computer Committee in the Arts and Sciences can do much to raise consciousness and to encourage

use of computers, however. English departments can support attendance at 4C's Conferences and subscribe to computer journals. Computer labs in English departments can provide access to faculty members who have not yet decided on a personal computer. Other English Departments and computer labs maintain a portable computer that can be wheeled into faculty offices on a cart for individual use. Oakland offers beginning training sessions for English faculty, both regular and part-time instructors. Instructors there who use computers in their composition courses get together once a year to discuss teaching techniques. CSU has one or two hour computer sessions in their orientation for GTA's who will be teaching freshman composition courses with WWB. Departments who wish to begin integrating computers will likely have no trouble with finding willing instructors. (All instructors at these universities were self-chosen. GTA's at CSU and USU and basic writing instructors at UCSB are required to integrate computers into their courses).

Nevertheless, some faculty members balk at learning electronic gadgetry that has no proven educational benefit, says Valarie Arms of DREXEL. Faculty training needs to emphasize that a good teacher can use computers in a lab or class without being a computer expert. Arms quotes Alfred Bork's analogy that teachers use textbooks without knowing how to print them. This becomes less of a problem as more and more faculty members purchase and use their own computers.

IV. Teaching the Students

19. Computers will not take the place of instructors in composition. Rather, they have the capacity to free instructors from some of the more frustrating tasks. Style-checkers and spell-checkers will help students to correct mistakes that can be caught by the computer. Instructors can then concentrate more on more substantive feedback. And, because students find revision to be far easier with a wordprocessor, the idea of rewriting a paper to improve it is not as much a burden to the students.

Charles Smith of CSU says that style checkers like WRITER'S WORKBENCH "not only help students but also relieve faculty of much mindless labor." He adds, "No longer are papers I mark riddled with spelling errors; no longer do I find common diction errors; no longer do I circle excessive reliance on to be verbs; no longer do I mark passive voice in analytical and argumentative essays; no longer do I write comments about sentence combining and excessive numbers of simple sentences.... As a result, I have never returned essays with so few editorial remarks or focused my closing comments more exclusively on those matters that most concern me (and my students)."

Valarie Arms says: "I still spend the same amount of time teaching with the computer as I did before. However, the overall use of that time is more productive; I can make substantive comments rather than having to correct mechanics and I can encourage more peer review because the students know how easy the changes are. Students actually find the course more personal and are please at the individualized instruction which the lab permits."

Instructors must be aware and must remind their students that the computer is not the authority. They are responsible for their writing; the computer is only another audience. At CSU, all instructors find it necessary to warn their students against trusting the computer too much. The spellchecker doesn't catch the differences, for example, between to, too, and two, or typographical errors that form other words. Students sometimes get caught up in playing a competitive game with the computer, trying to raise the "reading level" assessment, for example, by adding some polysyllabic words. UM's Bridwell and Ross state emphatically that "the student should see the computer as a tool, not a super-efficient authority." (Wresch 109)

20. Lack of experience with typing, computers, and wordprocessing among students doesn't have to be a problem for instructors. Students learn quickly when a variety of learning aids are made available. Wallis Anderson thinks that a lack of experience promotes sharing among students. Even the instructor need not know that much; the students will quickly teach the teacher.

Lack of typing skills is not the problem it was expected to be. Wallis Anderson of OAKLAND thinks that the process of working on a word processor is so wonderful for students who don't know how to type compared to writing by hand that they learn to input rapidly. Some instructors, like Helen Schwartz, prefer that students come into class with a threshold knowledge of keyboard and text entry. UCLA instructors don't worry about a lack of experience with typing; students are expected to be able to type. USU instructors require all

essays to be typed, whether students use the wordprocessors or not. As students work with computers at ever younger ages, this problem will disappear altogether.

21. Instructors integrating computers into composition courses should be careful to keep it a writing course and not a computer course. Students should begin WRITING on a computer immediately. It is tempting to spend time in ways that are not productive in improving writing. One way is by giving too much instruction in the ways that computers operate. Students don't necessarily need to know why the computer works in a composition course. Instructors need to give students the least complicated instructions to put words on the screen, saving more complicated commands until the students need them. UM's program directors, for example, were "determined to give the writers much freedom simply to think and write and keep our computing systems out of their way."

Another way time is taken away from writing time is to emphasize the appearance of an essay over the content. Computer software is available now that will give the appearance of typeset copy, complete with graphics. While these capabilities are exciting, and a sense of pride in the finished product is important in the attitude of the student toward the writing process, the instructor should remember that students are in the course to write and to learn ways to improve that writing rather than ways to dress up the copy.

And another way time gets stolen away from writing instruction is

assigning CAI "workbook" exercises to correct editing problems. None of the schools surveyed used these kinds of CAI except on a minimal basis. At UM, for example, word processing itself is at the core of the "learn to write by writing" philosophy.

22. Computer-integrated composition courses should attempt to provide for the various ways students learn to write. While, as UM and others have found, wordprocessing is the fastest and easiest way to integrate computers into the writing process, the software that helps students to prewrite, organize, and revise should be made available to them--made available but not necessarily required. After students have had a chance to try it out or to internalize the process it embodies, it may be made optional. Helen Schwartz calls these programs "training wheels," disposable after learning a skill. The word processor is the bicycle, always a necessary tool. Students who are more visual and spatial in their learning style may respond to the option of using computer graphics to illustrate their text or even to help them generate ideas, as for engineering students at Drexel.

The spelling checker is useful CAI. Students who are poor spellers are enormously relieved. Although some instructors still feel the use of spell-checks is somehow unethical, according to some of the administrators surveyed, many are just as relieved as the students. The spell-checkers that highlight the words that do not appear in the spell-checker dictionary but do not offer optional variants at least require the students to go and look up the word in the lab dictionary (or ask their neighbor). If the same word gets highlighted often enough, the possibility that the student might eventually remember the

correct spelling of the word is increased. Helen Schwartz doesn't see any difference between the computer flagging possibly misspelled words and the instructor circling misspelled words in red ink. In fact, flagging words before the final draft encourages students to look up their words in the dictionary and actually change them, which they are not likely to do in a graded text.

The ideal situation would seem to be a library of varied CAI (and word processors of different levels of complexity) as at UCSB. With many choices available, instructors could use computer software to individualize the course more than is possible without them, to make writing courses more humane, rather than less, which some humanities faculty feared. Instructors and students could also decide when they need to hone a skill and request appropriate software, from typing tutors to sophisticated open-ended programs to help with invention, substantive or organizational thinking and to increase creativity and growth. For example, WANDAH (now HBJWRITER) guides students through their choice of several open-ended invention, organizational, and revision heuristics, provides a simple menu-driven wordprocessor, and includes basic editing capabilities.

23. No commercial software is likely to serve all the special needs of university English departments. Many universities, understandably, are writing software designed for their own course requirements. UM, especially, has a commitment to designing a program that is adaptable to the individual needs of their individual instructors.

24. Use of computers in teaching writing encourages variety in teaching methods and techniques. Instructors and administrators who would like to see the lecture method of instruction decrease in their composition classrooms will be gratified to learn that several universities in the survey mentioned that since computers have been integrated into the composition courses, instructors do less lecturing and the students are more actively involved in the writing process. Computers offer opportunities for more flexibility of teaching techniques and more variety in learning activities: peer review, group discussion, and collaboration in thinking and writing as well. Networking and electronic mail increase the interactive learning process, according to instructors at USU.

In another example, Valarie Arms at DREXEL says that prior to using computers in her technical writing classes she used peer review techniques and individual conferencing on written drafts. Now rough drafts are reviewed on the terminal. "The lab time has replaced the conference and class review time with gratifying results. The lab has a workshop atmosphere that makes criticism easier to give and to receive because everyone knows how easy it is to make suggested changes...." Arms was also surprised to find striking results in experiments with student collaborative writing. Because the computer can hold and store different contributions by students in multiple drafts, students can experiment with achieving a consistent style.

25. Instructors of computer-composition courses should be prepared to adapt to the needs of their students as a result of using computers.

Answers from student questionnaires suggests several areas of concern that perhaps are not being adequately served as yet:

A. Although 77% of student responses indicated that they received enough training to be comfortable, as many as 33% are not able or are only marginally able to move paragraphs with ease, a skill essential for making global revisions. Training is casual in many places, but these answers indicate that more followup of initial training would be beneficial to make sure students have learned what instructors assume they have learned. Lab assistants should be trained to watch for students who are not using the computer to its fullest capabilities and to encourage questions from students using the lab.

B. Students indicate their greatest fear is in losing their work as a result of using computers. It will happen. The only way to keep the loss to a minimum is to emphasize the importance of making backup copies or hard copies of work frequently. One university has a poster that commands, "Print it or lose it."

C. Some students are frustrated that they are not learning enough about how computers work. Teachers who keep in mind that the course is a WRITING course and not a COMPUTER course will make it clear from the first that students will be expected to learn the intricacies of computers outside the writing course they are enrolled in.

D. Some conscientious students will become so involved with the computer's capabilities for revision that they will overwrite their essays, making endless changes at a local level that do nothing to improve the original idea, one that might not be worth the hours the student has put into it. These students will be understandably

dismayed that their work has had so little result. Universities with limited access to computers do not face this problem. When time is severely limited, students must enter their texts and leave the lab quickly. When students can sit for long periods of time at a computer, they may need to be encouraged to get instructor or student feedback at early stages of the writing to be sure that their ideas are worthy of serious development.

POST SCRIPT

The most general conclusion that one can draw after doing the research involved in this study is that computers with word processing appropriate other software, used individually and flexibly, with emphasis on writing, are a tremendous boon to composition administrators, faculty, and students. The responses to our questions suggest that computers are the tools we have been waiting for. We have been there at the meeting of the pedagogical paradigm of writing as a recursive process with the technology necessary to fully implement it. Now we can ask our students to rethink and revise until we and they are satisfied that both learning and communicating have taken place in their essays, not just until we are all exhausted.

If it were only writing teachers who were enthusiastic about word processing, this would surely be enough explanation. But students, who are usually beginning writers unconcerned with pedagogy, are enthusiastic. And teachers as writers, other professional and technical writers, researchers, collaborators, novelists and poets are equally enthusiastic. That this is so suggests that our current

pedagogical paradigm reflects the felt reality of writers writing--that at the least their writing and their ways of writing are enhanced by the capabilities of the computer. How writing is enhanced by computers in composition courses at ten universities during 1985 we have hinted at in this study.

But in spite of this and other studies, almost everything remains to be learned, to the joy of professional learners. And the possibilities of other kinds of instructional CAI and AI and simulation enliven educators in every field with the sense of being on the edge of radical changes in our perceptions and practices--as administrators, teachers, students, writers, and human beings.

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September 1986

APPENDIX

1. Questionnaire for Administrators
2. Questionnaire for Instructors
3. Questionnaire for Students

Questions for Administrators About Computers in Composition Instruction

Name

Institution

Department

Phone

PRELIMINARY INFORMATION:

A. Please write a brief overall description of the use of computers in the composition program at your institution.

B. Please list the course number, name, grade level, student ability level, and brief description of course(s) in which computers are used.

C. Please list the names of all administrators and their functions.

D. How many students are involved in the program? How many instructors?

1. SOFTWARE AND ITS INTEGRATION INTO COMPOSITION COURSES

A. What wordprocessing software do you use? In what courses? Is its use required or optional?

B. Do you use additional CAI in these courses? For what parts of the writing process do you have CAI? Is its use required or optional?

C. How and why was this software chosen or designed? What development has it gone through?

D. How are wordprocessing and/or CAI used in your computer-composition courses?

E. How do these wordprocessor courses fit into your entire composition program? (Are there control sections for research?)

F. What changes in the courses using computers have you made as a result of your experiments so far?

G. Have these courses caused any changes in your overal composition program?

H. What goals of your composition program do the use of computers address?

I. For what other reasons do you use wordprocessors and/or CAI in composition courses?

J. Additional comments?

II. DETAILS OF PHYSICAL FACILITIES

A. What kind(s) of computers do you use?

B. How many of each kind are available?

C. How many printers? Letter-quality? Dot matrix?

D. Are the computers networked? If so, how? (Can students call up each other's work for peer review? Can instructors call up students' work for comments on line? from their offices? etc.)

E. How many labs do you have? Of what approximate size? In what location in relation to classrooms? What percentage of computers are located in classrooms? How many classrooms? How many computers per classroom?

F. What hours are the labs open? Who can use them?

G. How are students scheduled into the labs? Are they given minimum or maximum hours of use or may students use the computers as much as they need or wish to?

H. How many students use the labs? About how many students per work station?

I. How are the labs supervised?

J. Is help available in the labs for problems with computer use? With composing?

K. Do the labs have separate configurations of equipment for private composing, for group revising advice, and/or for group instruction (or separate sections or labs)?

L. How are labs and equipment maintained? Approximate cost per year or semester?

M. What was the original cost of equipment and installation? How was it funded?

N. How is the cost absorbed? Is there an extra cost to students in computer sections of composition?

O. If using shared time systems, how is security of files maintained?

P. If using micros, how are disks stored, retrieved, and secured?

Q. Other pertinent information or unique features of your lab or classroom setups?

R. Please include a diagram of lab(s) and/or classroom(s) including room measurements and placements of computers, desks, printers, check-in and check-out desks, software storage, etc.

S. Include if possible copies of lab and software manuals, rules, posted directions for students, directions for monitors, forms for record-keeping, etc.

III. STUDENT TRAINING AND REACTIONS

A. How are students placed into computer sections?

B. What training in keyboard use do students receive? What percentage of your students need such training?

C. What training in using the wordprocessor do students receive? When? About what percentage of classtime is spent in training?

D. Are materials used in training commercially available or created in your department?

E. In your perception, do most students get enough training to be comfortable operating the wp? Do you have ways of coping with some students' fears of computers?

F. About how much class time is devoted to working with computers per week? About how much out-of-class time are students expected to spend at computers per week?

G. In your perception, has use of computers changed the way students write? The amount of revision? The way they interact with each other?

H. In your perception, has the use of computers improved the students' finished essays? Made them worse? In what ways?

I. In your perception, what percentage of students enjoy using the wp? What percentage do not?

J. In your perception, what percentage of students feel their their writing has improved because of using the wp? What percentage do not?

K. In your perception, what percentage of students feel that writing is easier with a wp?

L. Do you think that the wp is or is not used as a vehicle for thinking by students? What is the wp's potential as a tool for thinking?

M. Do you think that the writing style of students using wps and/or CAI tends to become more individualized or more standardized?

N. Do you think that paper use increases or decreases as students use wordprocessors?

O. In your perception, what are the primary advantages of wp use for your students?

P. In your perception, what are the disadvantages for students? How might they be mitigated?

IV. FACULTY PREPARATION, TRAINING, AND REACTIONS

A. How were faculty members introduced to computers and wps for their own uses?

B. How were they introduced to the use of wps in the courses they teach?

C. In your perception, what percentage of your composition faculty feels that wps are important in composition courses?

D. What percentage disapproves of the use of wps in composition? Why?

E. How were the instructors for computer courses chosen? What percent of your total faculty teach computer writing courses?

F. Were the instructors given a formal course in teaching comp with computers? If so, who gave the course? How long was it?

G. If training was informal or personal, please describe it.

H. In your perception, have instructors changed their teaching methods in the computer courses? If so, how?

I. Have instructors changed their ways of evaluating students' essay? If so, how?

J. Do any instructors use computers for keeping track of grades or other non-instruction uses?

K. Other comments in this area?

V. PROJECTIONS FOR FUTURE USES

A. What plans does your composition program have for changing the use of computers in courses in which they are now used?

B. What plans do you have for including the use of computers in other composition courses?

C. Is software being developed within your composition department? If so, software for what part of the writing process? About how many persons are interested in developing software?

D. Is research now in process regarding the use of computers in composition? Is research planned for the future? About how many persons will be involved in the research? What aspects of computers in composition will be studied?

E. What other developments do you plan or predict or recommend to others?

Questions for Instructors Using Computers in Teaching Composition

Name:

School:

Date:

Preliminary Information:

A. Course number, name, grade level, student ability level, and brief description of the course in which students answered questionaires. Please include when the course begins and ends.

B. Description of writing assignments: number, length, types of essays and revisions assigned and their sequence.

C. Description of other assignments involving computers or word processing.

D. Describe the changes in the course since computers were introduced. (Copies of syllabi before and after using computers, if available, would help to illustrate.)

E. Describe changes in your teaching methods or goals since using computers.

Questions:

1. How long have you taught this course?

2. Have you taught other courses using computers for writing?

3. Have you taught other courses using computers?

4. Do you use a wordprocessor for your own writing? Do you use a computer for any other personal or professional needs?

5. What training did you receive for teaching this course? Do you feel your training is adequate?

6. Do you feel that using the wordprocessor is important for student writers? Why or why not?

7. Do you feel that the CAI used is helpful?

8. For which parts of the writing process do you require use of computers? (Please write never, sometimes, or always)

invention?
freewriting to develop ideas?
organizing ideas and parts?
writing drafts?
revising ideas, details, and organization?
revising expression, style, and tone?
editing grammar, punctuation, and spelling?
commenting on peers' drafts?
other?

9. Please add an X and require or suggest after items on the list above for which you require or advise use of software CAI in addition to the wordprocessor.

10. Would you change the course in any way the next time you taught it?

11. In your perception, what percentage of students enjoy using the wp? CAI if any? What percentage actively dislike it?

12. Do students tend to make more or fewer changes during drafting and revising when using the wordprocessor? Are these changes primarily local or global?

13. Do students tend to be more or less objective about their writing when they see it on the screen rather than on paper?

14. Do students pay more or less attention to their writing processes using the wordprocessor?

15. Do they write more or fewer words and/or pages?

16. Do they write more or less quickly?

17. Do they seem to feel more or less free to make mistakes?

18. Do they seem more or less free to begin writing in the middle?

19. Do they play around more with words and ideas?

20. In your perception, what percentage of students feel that writing is easier with a wp than with pen or typewriter?

21. In your perception, what percentage of students feel that their writing has improved because of using the wp? What percentage do not? Do you agree with those who feel they have improved?

22. Do you think that the wp is or is not used as a vehicle for thinking by students? How could it be more used than it is?

23. Do you think that feedback on style tends to make students' writing styles more individual or more standardized?

24. Do you think that paper use increases or decreases as students use wordprocessors?

25. In your perception, what are the primary advantages for students using computers in their writing?

26. What are the disadvantages for students?

27. Other comments that you'd like to make?

Questions for Students Using Computers for Composing

Name

School

Date

1. Do you type?

2. Had you written with a wordprocessor before taking this course? If so, how much experience with wordprocessing have you had?

3. Had you used computers for purposes other than writing? If so, how much and doing what?

4. Did you have positive expectations about writing with a computer before you began to do so? What were they?

5. Did you have negative expectations? What were they?

6. About what percentage of the time you spend writing is spent at the computer?

7. Which parts of the writing process do you use the computer for? (Please write never, sometimes, or always)

inventing ideas, prewriting until you reach a thesis?
freewriting or rough-drafting to develop ideas?
organizing ideas and parts?
writing a draft?
revising ideas and details and organization?
revising expression, style, and tone?
editing grammar, punctuation, and spelling?
commenting on another person's draft?
other?

7a. Would you please add an X after items on the list above for which you used a software program in addtion to the word processor?

8. Can you move paragraphs around with ease?

9. Was the training you were given adequate to help you write at a computer with some ease? Is there anything you need more help with?

10. Do you make more or fewer changes during drafting and revising working with a wordprocessor than you did with pen or typewriter? Are the changes mostly in ideas and order or in words and phrases?

11. Are you more or less objective about your writing when you see it on screen than you were seeing it on paper? Why?

12. Do you pay more or less attention to your writing process on a wordprocessor than you did using paper and pen? Why?

13. Do you write more or fewer words and pages on a wp than on paper? Why?

14. Do you write more or less quickly on a wp than on paper?

15. Do you feel more or less free to make mistakes on the wp than on paper? Why?

16. Do you feel more or less free to begin writing in the middle or wherever you wish? Why?

17. Do you play more or less with words and ideas? Why?

18. Have you noticed any changes in your writing process after using the computer? What?

19. Do you enjoy writing more or less with a wordprocessor?

20. Do you feel that your finished essays are better or worse when you use the computer?

21. What would you say now is the worst aspect of your experience in writing with computers?

22. What would you say now is the greatest benefit to you of your experience in writing with computers?

23. Would you take another course in writing with computers?

24. Is there anything else you would like to say about writing with a wordprocessor and/or CAI?